Smithsonian

October 1993

RUBENS

Here, a stunning early portrait (p. 58)

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October 1993

Smithsonian

Volume 24, Number 7

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Cover: Rubens' *Marchesa Brigida Spinola-Doria* (detail) dates from 1606, when the artist was 29. With it he introduced drama, movement and naturalness into aristocratic portraiture–a tradition followed by masters such as Van Dyck, Reynolds, Gainsborough and Sargent (p. 58)
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Smithsonian (issn 0037-7333) is published monthly by the Smithsonian Associates, 900 Jefferson Drive, Washington, DC 20560.
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Subscription price is $22 a year in U.S. and possessions, $35 elsewhere. 80 percent of dues is designated for magazine subscriptions. Single copy price is $3. Second-class postage paid at Washington, DC and additional mailing offices.
Editorial offices are at 900 Jefferson Drive, Washington, DC 20560.
Advertising and circulation offices are at 420 Lexington Ave., New York, NY 10170.
Members: Please address all subscription correspondence and change of address information to Smithsonian, P.O. Box 55593, Boulder, CO 80322-5593; or call 800-766-2149 or 303-449-9609.
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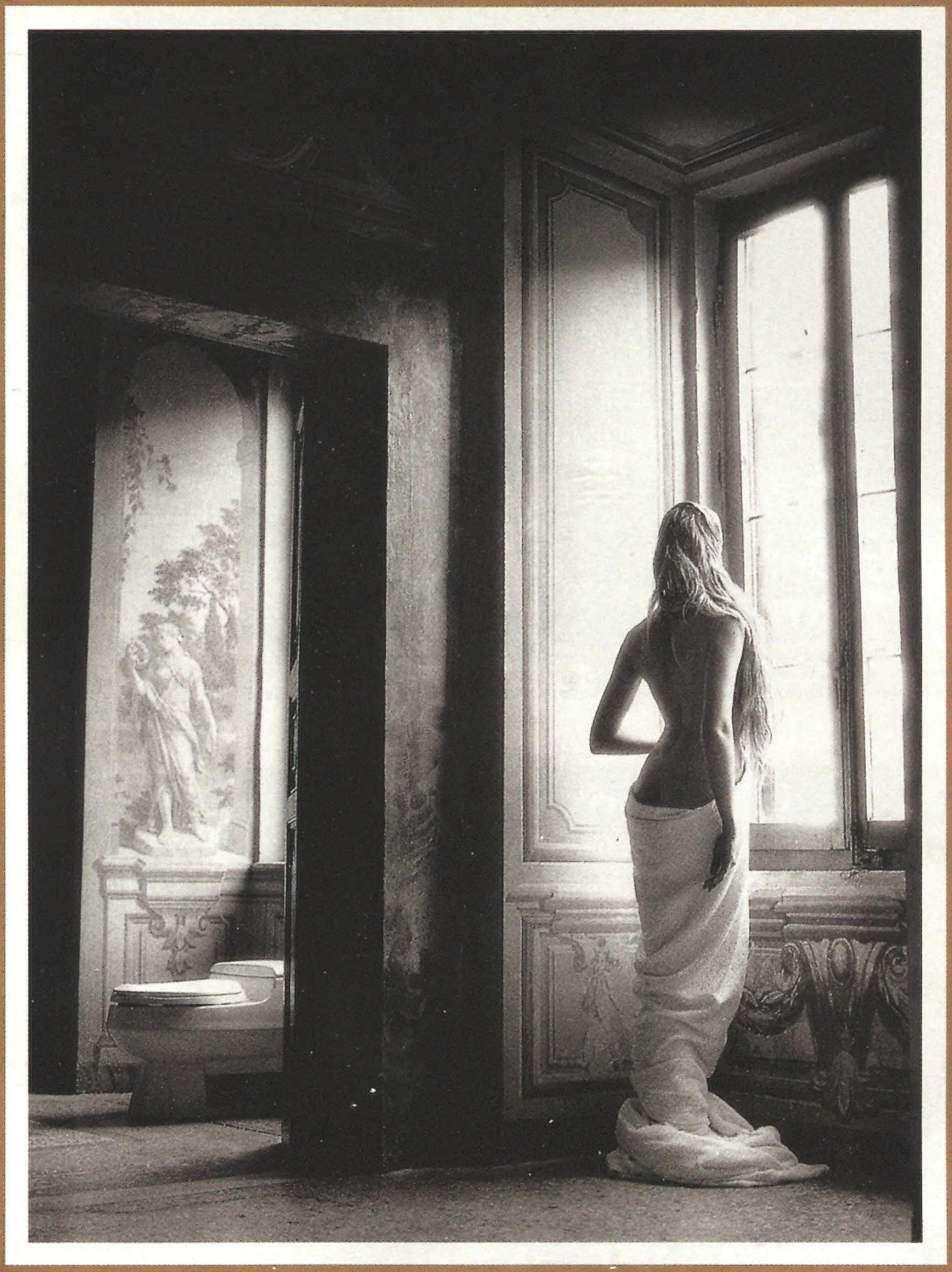

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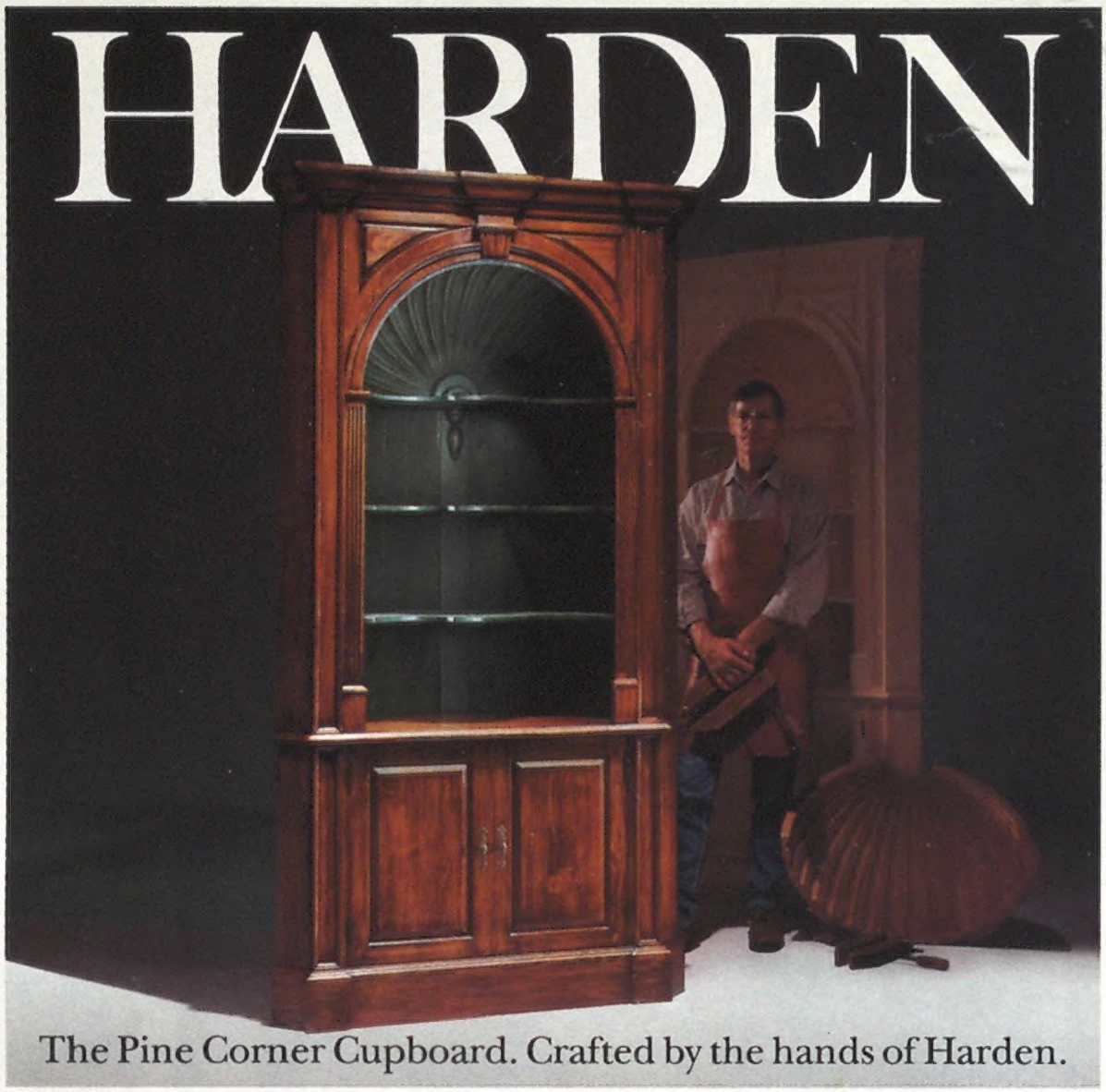

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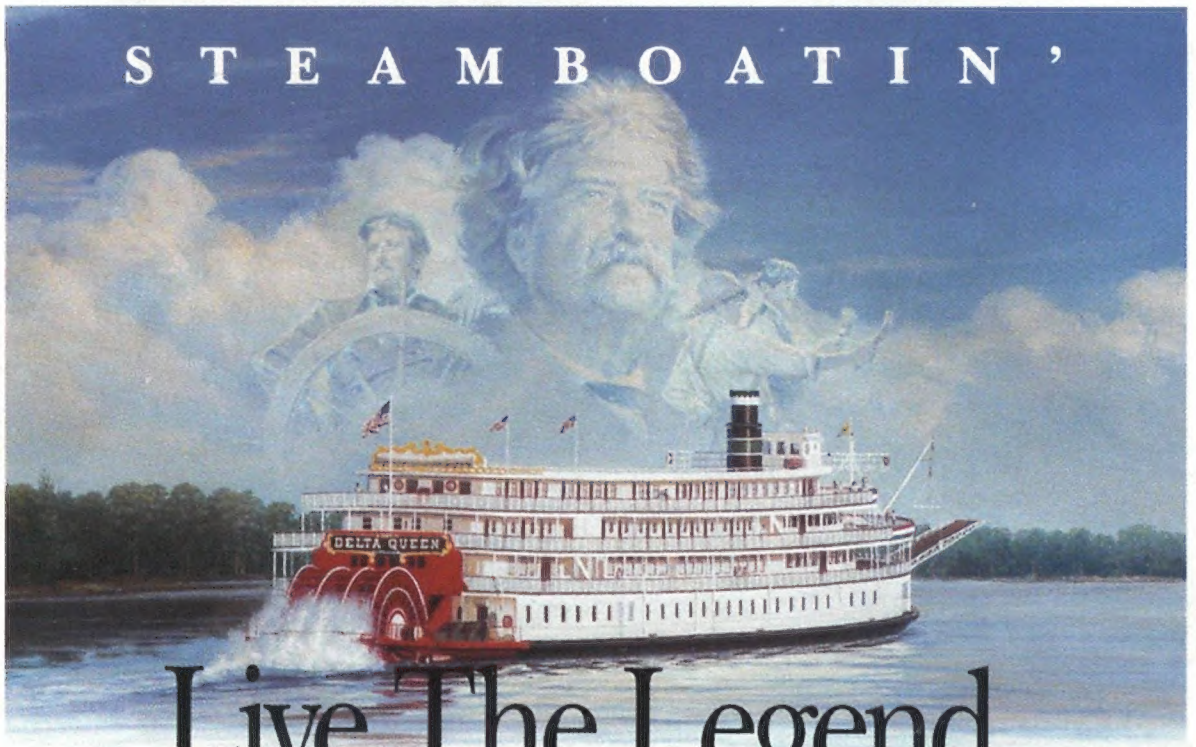

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Secretary Adams' comments

Smithsonian horizons

Experiments with new possibilities in information technology must also allow for the human implications

Efforts to transform electronically the ways in which Americans communicate with one another, simultaneously enlarging our capacities to explain and educate, are continuing to gather momentum. And on a small but promising scale, commensurate with the Smithsonian's presently limited resources for new initiatives, the Institution is not only involved in these efforts but taking leadership in some of them.

Setting the stage for our own initiatives is the major exhibition "Information Age: People, Information & Technology," which opened four years ago in the National Museum of American History (see *Smithsonian horizons*, April 1989). Its displays of the invention of the telegraph and other 19th-century technology call for little reinterpretation. On the other hand, the much more fully illustrated, recent aspects of the subject are a moving target that requires almost continuous updating. We are very much indebted to a host of hardware and software manufacturers for vital assistance in keeping "Information Age" current.

An exciting new feature of the exhibit is the installation of a "media wall"–in effect, a large rectangular bank of video screens that can display moving, theater-style images. Capable of showing any program that can be run on a personal computer, this has so far been the product of spare-time efforts of several interested staff. From one originating setting, it could simultaneously transmit a program to almost anywhere.

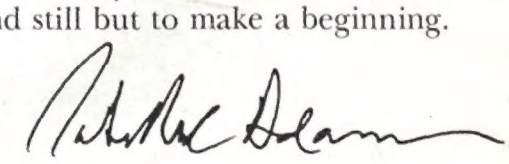
It would be hard to overstate the volume and variety of public inquiries that the Smithsonian receives about its programs, publications and exhibits–and about the more than one hundred million objects in its collections that are important for scholarship but will probably never be on public exhibit. At present, most inquiries are motivated either by individual research interests or by plain curiosity. How wide and welcoming would the response be if we could make texts and photographs electronically available for reading on-line or for downloading? Here, too, we are experimenting on a small scale with America On-Line, a commercial service. What can we most effectively put into the system? Can we elicit critical feedback from "consumers" that will alert us to other problems and possibilities?

Still a third promising beginning involves the production and dissemination of CD-ROMs (Compact Disk Read-Only Memory). A single disk, very inexpensively produced, can hold 100,000 pages of text (somewhat less when there are illustrations). This is in many ways an ideal format for making publicly available everything that has to be brought together for a major exhibit. It could include, for example, full descriptive accounts and photographs of all objects that have been considered for inclusion, as well as those selected, along with background information on context and alternative interpretations, and the rationale for the design of the exhibit. Our National Museum of American Art foresees this as a useful medium for database inventories for American paintings and sculptures. It is no less applicable to the programs of the National Museum of the American Indian, whose mandate includes the dissemination of information on its collections to remote Native American sites all over the country.

These three examples are perhaps closest to widespread utilization, but others, and their applications to other Smithsonian museums, are also on the drawing boards. What they have in common is a dependence on the development of a national electronic infrastructure that prominently includes high-capacity, broad-band-width "information superhighways" of fiber optic cable. They will remain mere experiments unless rapid and reliable transmissibility to diverse reception sites–homes, schools and offices as well as museums, libraries and other institutions–can be assured. And they need to reach the very broad audiences that alone will allow the necessary economies of scale for us (or anyone) to go forward.

As we all know, overoptimistic accounts abound of the technological "breakthroughs" that supposedly lie just over the horizon. It may be just as well that we are beginning on a small scale, for there are still many challenges that no one is yet sure how to meet. Most of them do not involve hardware and software innovations alone, for they are primarily organizational or even perceptual. How do we locate the areas of greatest demand that we are at the same time best–or, better still, uniquely–able to supply? How can we communicate what is or might be available to audiences that are still largely uninvolved in electronic networks? How can the very substantial up-front costs for content preparation and editing somehow be reimbursed? How can the creative work involved be adequately protected and credited to those who are responsible for it? How do we assure–as access to information in these new ways plays a more and more pivotal role in both individual and national success–that those without such access are not further marginalized and disenfranchised?

These questions have no easy answers. But the way to find answers is not to stand still but to make a beginning.



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Letters to the Editor

National Postal Museum

Dear Sir: In 1916 the bank in little Vernal, Utah, decided to replace its frame building with brick. But the small, nearby brick works could not supply either the quantity or quality needed. So bricks had to be shipped from Salt Lake City via the Denver and Rio Grande to the nearest railhead in Mack, Colorado, then transferred to a single-gauge line to Watson, Utah, and loaded onto a horse-drawn freight wagon for the 65-mile trip by road and ferry across the Green River to Vernal. Tortuous and astronomically expensive. So the bank president hit on a novel idea: all the bricks were sent to the bank by Parcel Post in small packages. Needless to say, this cost the Post Office Department dearly, and the rules were soon changed to forestall any similar shipments.
Phillip Leighly
Rolla, Missouri

Dear Sir: The photograph of the cheerful postman on page 76 of your August issue was taken on December 8, 1913, in Duluth, Minnesota. He was carrying a load of 90 pounds.

He was my grandfather, and I have a sepia postcard of the same picture, with his handwritten notations of the date and load. He sent the card–with a 1-cent stamp–to his father and sister in Gainesville, Florida, with this greeting: "A Merry Xmas to All."

I was thrilled to see Grandpa Paul in full regalia, smiling his wonderful smile!
DeLores Paul
Edina, Minnesota

Dear Sir: Mail service between Washington, D.C. and Philadelphia started on July 6, 1926. Passenger service began on July 15, and in October my mother had her first ride in a mail plane, a Fokker three-engine monoplane. When the pilot asked her if the trip was as exciting as she had anticipated and her reply was not overly enthusiastic, he turned the plane upside down and changed her mind. A postcard to her sister in Dubuque expressed the thrill of it all.
Anne Lawrence
Prescott, Arizona

Dear Sir: The mailing of the 4-year-old reminded me of our granddaughter's first plane trip in 1966. Her father had been assigned to the Paris office of *Life* magazine, and when Anne was almost 3 weeks old, she and her parents flew the Atlantic. She was classified as "excess baggage" and her plane fare based on her weight. Since she was a tiny baby, the charge wasn't much. Her space on the plane was a "Bye Baby Bunting" hammock, and she slept most of the trip. I don't know if she wore a baggage tag.
Mary Frances Wilson
Oklahoma City

Dear Sir: The saga of Owney, the Marco Polo of dogdom, began one wintry day in 1888 when he crept into the Albany, New York, post office and fell asleep behind some mail sacks. The clerks shared their lunches with him and adopted him as mascot.

He soon hit the rails. The Postmaster General presented him with a lifetime railroad pass, permitting him to ride in any mail car. In 1895 he went to Alaska and on the way back visited Tacoma, Washington, where he followed the mailbags up the gangplank of the SS *Victoria*, bound for the Far East. He traveled first class and had the run of the vessel. In Japan he met the mikado and received a medal and honorary passport. The emperor of China also gave him a medal and passport. He continued his voyage, passing through the Suez Canal into the Mediterranean and across the Atlantic to New York City. When he arrived he had 200 medals. In San Francisco, the mayor presented Owney with a traveler's kit. He had gone around the world.

For more than nine years Owney traveled the globe. He retired in 1897; his end came in June of that year.
Kenneth B. Haas
Kalamazoo, Michigan

Dear Sir: In the 1920s we lived on a farm on a high prairie about seven miles north of Nez Perce, Idaho. Usually Mother baked bread, but in harvest time she would buy it from the bakery in Lewiston, about 55 miles away. The bakery packed fresh loaves in big wooden chests, put them on the early train, and they would arrive in Nez Perce about 7 A.M. The grocer would immediately wrap two loaves in brown paper and take them to the post office. They would be delivered to our RFD box by 11:30 A.M.
Margaret Nell Longeteig
Lewiston, Idaho

Dear Sir: My father was the first RFD carrier in Crawford County, southeastern Kansas, around 1904.

From horseback through horse-drawn buggy to "Tin Lizzies," the mail always got through. On many occasions Father was forced to break trail for his horse through snowdrifts, wade and ford the streams and creeks, even cut fences to cross fields during floods so the farmers could get their letters and *Capper's Weekly* on time. Twice he was brought home senseless–stiff as a carp from the cold–to thaw out, only to be back on his route the following day.

I once asked why he stuck with such a thankless job. His answer: "Some have to teach. Some have to preach. Me, I gotta carry the mail!"
Frank S. Capps
Burbank, California

Dear Sir: The U.S. Post Office did not begin in Texas until 1845, when Texas joined the Union. The first post office was located in the home of John Peacock Bowen, who had served as postmaster of the Republic of Texas in the early 1840s. Bowen reportedly served for $1 a year. In 1857 a four-year contract was awarded to James Burch at $149,000 per annum for semimonthly mail service between San Antonio and San Diego, with 30 days allowed for making each trip. Passengers and mail were protected through Indian territory by armed riders.
Mary Ann Noonan Guerra
San Antonio, Texas

Navajo Code Talkers

Dear Sir: Other Native American Code Talkers served in the European Theater of Operations. At the 1990 reunion of the 4th Infantry Division in Colorado Springs I struck up a friendship with Forrest Kassanavoid of the Comanche tribe, who was a member of one of five platoons of Code Talkers in the 4th.

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He told me that Comanches and Choctaws had been recruited for the same reason as the Navajos, and that neither the Germans nor the Italians had been able to break their codes.

Kassanavoid and two other Comanche Code Talkers were decorated by the French government in 1989 with the Chevalier de l'Ordre National.
Jack Tuttle
Webster, New York

Dear Sir: The first permanent tribute to the Navajo Code Talkers is the statue of a reflective Navajo holding a flute [below]. The work of Doug Hyde, it was commissioned through the Heard Museum by Beta West Properties and the Koll Company. It sits on their Phoenix Plaza office complex, at an intersection crossed by 80,000 cars a day.

The inscription notes: "Among many Native Americans, the flute is a communications tool used to signal the end of confrontation and the coming of peace. . . ."
David Pent
Paradise Valley, Arizona

Henry Stern

Dear Sir: Commodore Vanderbilt, who started the family fortune with his interests in the area's ferry and steamship lines, later engineered the expansion and development of the New York Central and Hudson River railroads. As this led to construction of Grand Central Station, I think we can see the connection to the ship's hawsers with stampeding rats at the entrance to the station, shown in the photograph on pages 90-91.
Ray Jay Wagner
Foster City, California

Dear Sir: The Anonymous Arts Recovery Society has rescued endangered sculpture from buildings in demolition in New York City for over 40 years. We also maintain a splendid small museum of architectural sculpture in the Anonymous Arts Museum in the hamlet of Charlotteville.
Ivan C. Karp
Charlotteville, New York

Dear Sir: Our state Capitol contains eagles, cows, horses, griffins and gophers. In fact, gophers decorate many stairs and railings in the Capitol area. Minnesota got its nickname, the "gopher state," in 1858, based on a political cartoon about a state scandal in which state money was given to companies to build railroads that never got built.
Lisa Peterson
Richfield, Minnesota

The Great Smokies

Dear Sir: David Nevin chides city hikers for their excessive noisiness. In parks where large carnivores make their homes, a little noise is sometimes a good thing. In my years as a silent hiker, I blundered into several bears and an extremely large cougar. The animals frowned at me, then turned their heads, implying that if I took the hint and disappeared, they would ignore the intrusion. I was lucky; so were they. Following the advice of park rangers, I now chatter quietly to myself on the trail and occasionally ring the bear bells I wear around my neck to announce my presence. I am sensitive to the small disturbance I create in the forest as I walk, but am safer for it, as are animals who share the parks with me.
Andrea J. Tuttle
Roseburg, Oregon

Ralph Fasanella

Dear Sir: I have known Ralph since 1972, when I photographed him for the local newspaper as he was painting a large canvas, talking a blue streak and listening to scratchy 78 rpm Big Band records. He has become a warm and generous friend. When my daughter was 6 or 7, Ralph gave her a set of pastels; she is now an art student, thanks in part to his inspiration. And in 1990, during the devastating strike at the *Daily News*, where I am a writer and editor, his presence on the picket line–asking questions, making sketches and sharing the anecdotes of a lifetime in the labor movement–was a tonic and blessing to many.

Similar acts of good will have made him a beloved figure in his Hudson River community. Prints of his paintings, many signed and personally inscribed, hang proudly in barbershops, pizza parlors and diners. Ralph Fasanella is not only a great artist and a national treasure, he's one hell of a guy.
Brian Kates
Dobbs Ferry, New York

Electric fish

Dear Sir: That the ancient Greeks were familiar with electric stingrays is shown not only by their artwork but in Plato's dialogue *Meno*. Socrates, arguing, has him so confused that Meno declares: "You seem, in appearance and in every other way, to be like the broad torpedo fish, for it too makes anyone who comes near and touches it feel numb, and you seem to have that effect on me, for both my mind and my tongue are numb, and I have no answer to give you."
Margarita R. Levin
New York City

If your best friend acts like Angus. . .

Dear Sir: My husband loves dogs. He has two. I love cats. I have three. We are newly married. I am trying to learn to like dogs. He is trying to learn to tolerate cats. Our dogs are a year old. Amoz, the big one, makes me crazy with his barking. Katie, the little one, makes me crazy with her barking. My husband travels a lot. I am left with two crazy-making barking dogs. Are there support groups for people with obstreperous dogs?
Patricia S. Warr
Nashville, Tennessee

Dear Sir: Dogs like Angus give all trustworthy and well-cared-for dogs a bad name. Give Angus a job! Dogs, like children and adults, need something to do.

Therapy Dogs International volunteers and 5,000 dogs provide companionship and share love with thousands of Americans in care centers and institutions. My Welsh terrier, Zippy, and I now have over 100 volunteer hours, visiting with the terminally ill and Alzheimer's patients in facilities in the San Diego area.

Don't use the excuse that Angus is too old. Training, a loving personality and a desire to help are all that are needed. Shauna, a 13-year-old golden retriever, gray muzzle and all, is a new volunteer. The seniors love her because they can truly empathize with a senior citizen dog.
Eva Shaw
Carlsbad, California

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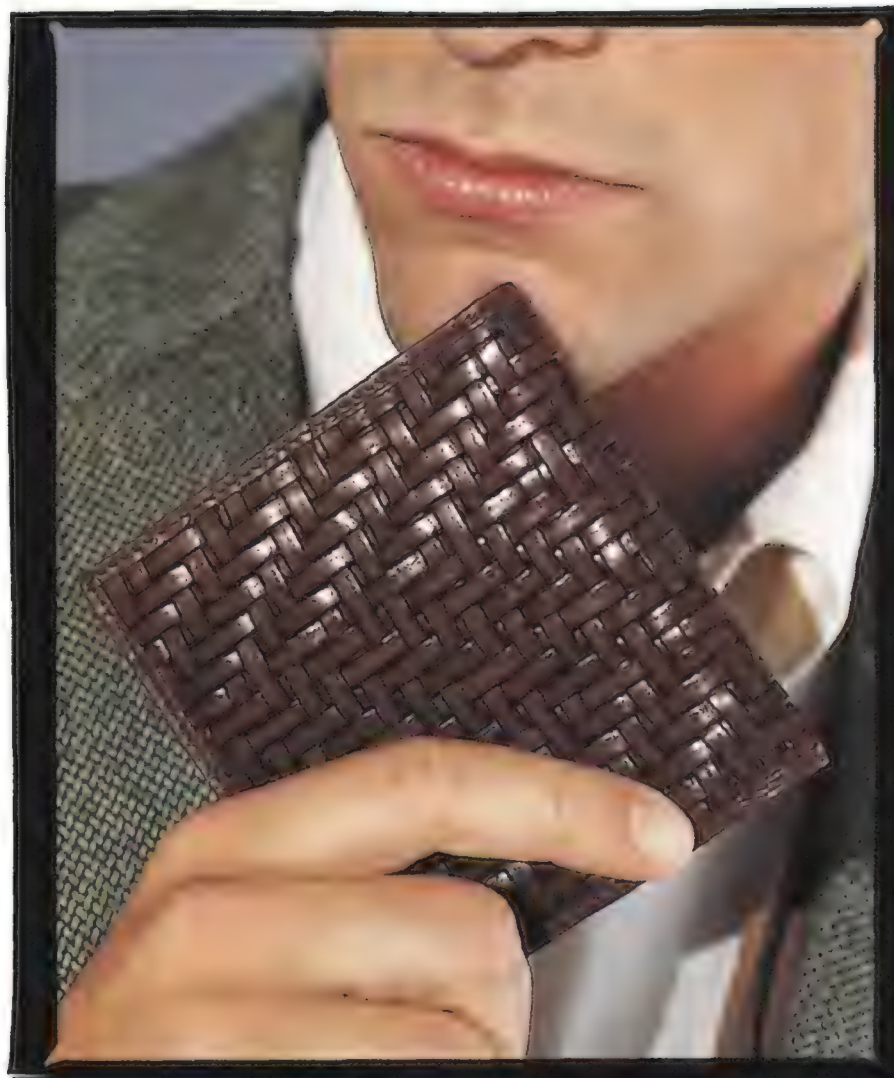

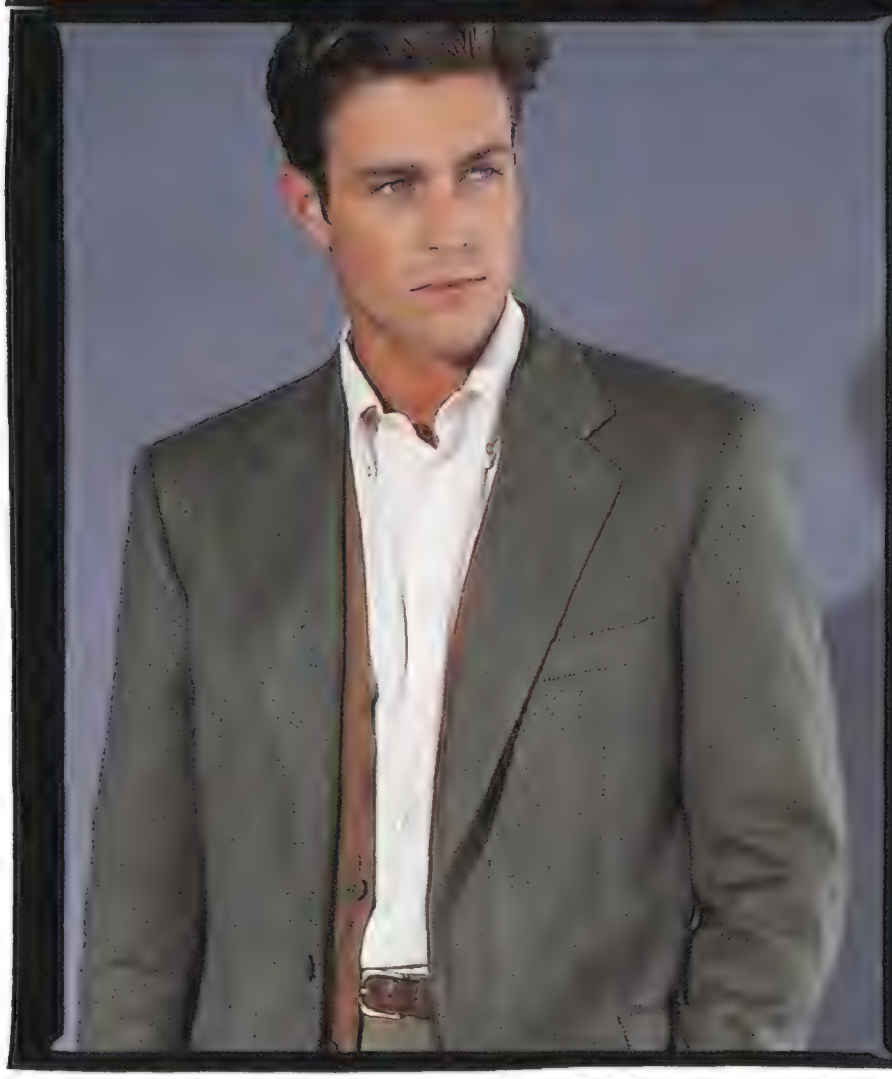

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Around the Mall and beyond

The Wright Flyer hangs near Crouch's office at the Air and Space Museum. His book *The Bishop's Boys* is an intimate biography of the famous brothers.

It's the people–the individual players in the history of flight–that fascinate writer Tom Crouch

"He had sported a reddish mustache since high school. Once full, almost a handlebar, it was now clipped short, just bushy enough to cover a pair of very thin lips that turned up at one corner when he smiled. . . . He was the enthusiast of the pair, ever on fire with new inventions, and the optimist as well, the one who always saw the brighter side. . . ."

From that, you may recognize Orville Wright. The description comes from the award-winning book *The Bishop's Boys*, by the Smithsonian's own Tom Crouch. No other author has managed so well to combine the story of aviation's birth with an intimate view of the Middle American, strangely fascinating Wright family. Crouch knows them so well, you'd think he was one of the neighbors.

You'd be correct. Tom Crouch was born roughly half a century ago in Dayton, Ohio, home of the Wrights. His father worked at Wright-Patterson Air Force Base, the famous testing center. "He still does, as a supervisor, though he's pushing 70," says Tom. "I grew up in and around that complex. As a kid, I used to ride my bike over to the Air Force Museum."

Our talk, shouted back and forth through the high decibels of the National Air and Space Museum's staff cafeteria, revealed, as often happens, previously unseen facets in a familiar friend. I've known Tom for years–since long before he was made chairman of the museum's Department of Aeronautics. I knew him as a profound scholar, an expert to whom I've often scurried with half-baked aviation articles in the assurance that he will render them factually edible.

Still, I didn't know that he's no more an aeronautical engineer than I am. He majored in history at Ohio University, got a master's in history at Miami (in Ohio) and a PhD at Ohio State. In order to qualify for the history of science component of his doctorate, he studied anthropology. "I felt it was useful for a historian to know how another discipline looked at the past."

Paradoxically, what he considers his most memorable contribution to the Smithsonian has nothing to do with aircraft. In the mid-'80s Tom moved temporarily across the Mall from Air and Space to the National Museum of American History, he says, "just because I felt I needed to stretch for a while."

Roger Kennedy, then director of American History (see this column for February 1993), recruited Crouch to help dream up an exhibit related to the 200th birthday of our Constitution. Tom says he and other members of the exhibit team were kicking around ideas and getting nowhere. "So finally I suggested that we bite the bullet and try an exhibit on one of the incredibly difficult problems that arose during the 200 years of the Constitution. Why not talk about living, flesh-and-blood people instead of Madison and Hamilton and Washington?"

The issue he had in mind was the treatment, during World War II, of Japanese-Americans living near the West Coast. Thus, the Museum of American History took a thoughtful look at an instance when the federal government violated the constitutional rights of citizens. (The exhibit, "A More Perfect Union," tells the story of how nearly 120,000 Japanese-Americans were removed from their homes and sent to internment camps.)

"On the day I retire," Tom speculates, "that will probably remain in my mind as my most important contribution to the Institution."

Fortunately, Tom Crouch's retirement is as far away as the stars. He's now working on a book about spaceflight–"really more about the people who put us into space than about the machines that carried them there"–and he's going through the often delightful explorations of research. "The book will open with the earliest realization that when you look up, you're not staring at a black-velvet dome over the Earth, but across a gulf of mind-numbing dimensions," he says; "then we'll get into personalities, starting with Kepler."

Crouch tends to talk in the "of course you know" style of scholars, so after my interview I sneakily looked up Johannes Kepler (1571-1630), friend to Galileo, originator of astronomical laws including the elliptical orbit of the planets around the sun. Kepler also, as Tom said, "put forth the notion that someday, people would actually go into space."

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In the same way he got deep inside the Wrights in *The Bishop's Boys*, Tom Crouch is seeking to dig into the people who have explored space, whether actually or theoretically. "I'm not a pilot, not an engineer. What fascinates me most about flight–about any achievement–is the people who do it."

He points out that *The Bishop's Boys* was a great book to write, partly because the brothers kept extraordinary records and diaries, writing down small details, and partly because they had strong and unusual personalities.

Asked to give a speech at Wright State University in Dayton, Tom was invited by the Wrights' niece Ivonette Wright Miller (well into her 90s) to be her guest at Hawthorne Hill, the estate that Orville had seen to completion after Wilbur's death in 1912.

"I stayed in Orville's bedroom, and found there the furnace control for the whole house. The mansion has a built-in industrial vacuum cleaning system designed by Orville, a backup water supply rain-fed by a cistern on the roof, and an electrical system that only Orville could figure out. I realized that this shy man had built a psychological fortress–a machine for living–for himself and was comfortable only with his own hand on the throttle."

Being able to make such close connections with the Wrights was a tremendous boost to Tom's task. "Ivonette could remember when the brothers came back from Kitty Hawk in 1903. My God! What a great feeling for a young writer, to sit across the kitchen table from this wonderful lady, sharing cookies and milk, and hearing her reminisce about her uncles returning home after making the first flight!"

But how close will Crouch be able to get to the various forefathers of spaceflight? He can't tell yet, but he's hot on the trail. Take Robert Goddard, some of whose early rockets stand in the Air and Space Museum. "Here," says Tom, "was a scientist who was so sure of himself that he stuck to his theories and experiments at a time when rocket travel in space was considered about as sensible as perpetual motion."

Goddard was an inspired dreamer, Tom notes, and quite literally a visionary. In 1898, when Goddard was 16 years old, his father asked him to trim the cherry tree in the backyard of their Worcester, Massachusetts, home. Young Goddard had been reading a serialization of H. G. Wells' *War of the Worlds* in a local newspaper, and as he was clipping away at the branches, he suddenly imagined what one of Wells' Martian spacecraft might look like if it landed in the meadow at his feet. The thing was very real to him. He could even picture the whirling weights of a centrifugal-force propulsion system, for example.

It was a turning point in his life. "I was a very different boy when I descended the tree," he remarked some years later.

Like the Wrights, Goddard was a lifelong diarist. In some years he would forget to note his own birthday or wedding anniversary, but he never forgot October 19–the day he had climbed the cherry tree. In 1938, while Goddard was flying rockets in New Mexico, a friend informed him that the old cherry tree had been destroyed by a hurricane that swept across New England that year. "Cherry tree down," he wrote in his diary that evening. "Have to carry on alone."

Goddard's Russian counterpart, the

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pioneer space theorist Konstantin Tsiolkovsky, says Tom, was also struck by the possibility of actual spaceflight in a blinding flash–not on the road to Damascus but on a street in Moscow.

Filled with such priceless material as this, Crouch's spaceflight project will be published next year by Smithsonian Books, and it might even evolve into a TV series.

After that, he'd like to return to another area of flight–balloons. His splendid 1983 book, *The Eagle Aloft: Two Centuries of the Balloon in America*, contains a long and highly entertaining chapter about Dr. John Jeffries, an expatriate American who financed and accompanied the French balloonist Jean-Pierre-François Blanchard on the first aerial crossing of the English Channel in 1784. Jeffries, a combination scientist, adventurer and womanizing rakehell, was the first American to fly. "I'd like to do a book about him," says Tom. "Did you know he was a Bostonian and a Loyalist during our Revolution? Great character for a biography."

Doubtless Crouch will find a moment or two for a new prizewinner. But his days are crammed with writing, researching, lecturing and managing a busy museum department. It's hard to see where he'll unearth the time.

I watched him in typical action when the U.S. Naval Institute put on a full-scale hearing at the Naval Academy in Annapolis to discuss the Amelia Earhart mystery. Richard Gillespie, whose organization, the International Group for Historic Aircraft Recovery, seeks to solve such puzzles, presented his case that on the last leg of her 1937 circumnavigation, Earhart and her navigator were forced to land on what was then Gardner Island, in the Pacific.

The panel–experts in science, government, aviation and Pacific geography–was impressed by Gillespie's complete and careful presentation, including his graphics, his scraps of aluminum from the island, his feasible answers to volleys of questions. The auditorium buzzed with speculation. I was reminded of a courtroom scene from television–*Matlock* or *Perry Mason.*

But at the far right end of the panel sat Tom Crouch, certainly one of the youngest of its members and a little more Santa Clausish than any of the others (he struggles manfully against a tendency toward rotundity). He was utterly relaxed, smiling jovially at Gillespie–and then he cut straight to the bone in a few sentences. The explanations were logical but not convincing enough; the findings were too fragmentary to mean much. "I still think Miss Earhart is at the bottom of the Pacific," he said affably.

Perry Mason had spoken. The audience sighed. The mystery is to be continued. "Tom is a great man," Ric Gillespie told me after the session. "Someday I'll convince him."

And a few weeks later it was Tom's turn. "I like Ric," he said. "I'll be very happy if and when he solves this case or another like it. Good luck to him."

And good luck to Tom Crouch as he turns his scalpel-mind on those early dreamers of spaceflight, on Jeffries and all of his peccadilloes. We await Tom's parade of characters; we foresee their odd vanities, hang-ups, insecurities and manifestations of burgeoning genius. And we can be certain that the dreamers will throb with life.

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Phenomena, comment and notes

It seems we're related to the fungi, and that without them life as we know it probably could not continue

Dark matter is all the rage among astronomers these days. They're aquiver after realizing that the shining stars and galaxies they have been studying all these decades constitute only about 10 percent of the Universe: the rest is out there lurking in the dark (SMITHSONIAN, June 1993). In my personal universe, however, I don't have to look up at the stars to discover that I, too, have been paying attention only to what I can see. The most important parts of the ecological systems here on Earth, it turns out, are not only things I have never seen but things I never even thought about.

In a lecture given by Lynn Margulis at the Smithsonian Environmental Research Center, I learned that we do not understand evolutionary history anywhere near as well as I had assumed we did. We are good at finding where one species split to become two, it seems, but not so good at seeing where two species merged into one, in a process called symbiogenesis. Margulis spoke about how bacteria from the kingdom known as the Monera (which appeared 3.5 billion years ago) combined to form the more complex cells of the kingdom called protoctista (which first appeared 2 billion years ago), producing such important organisms as algae, slime molds and amoebae. The protoctista, in turn, provided the wherewithal for the more recently formed kingdoms of animals (750 million years ago) and plants (450 million years ago) as well as a fifth kingdom, which we will get to in just a minute.

In a paper in the journal *BioSystems*, which Margulis handed out at the talk, she argued that better knowledge of the past is not simply esoteric curiosity: we cannot really understand a relation like that between species diversity and environmental stability, past and present, until we get better at estimating both species diversity and how, through evolution, it has changed over time.

A month later in a course on estuarine ecology, I learned from the instructor–a marine geochemist–that chemistry is everything (why was I surprised?). Toadfish, blue crabs and oysters were presented as an afterthought. And so we went on field trips that were devoted to measuring the methane content of bottom muds or the oxygen content of the water. And of course he was right: you have to understand these things before you can understand the rest. Now I (almost) can look at a body of water and feel electrons moving from one atom to another. Another invisible universe impinges on my consciousness.

Now it's happening again. The grass on the lawn and the trees in the woods, it seems, are little more than testimonials to the presence of the organisms that actually define terrestrial ecosystems: the fungi. In fact, of course, I've been reading about fungi for a long time, but it never registered. In my little cosmos, the natural world was still divided among animal, vegetable and mineral. Biologists now sort living things into no fewer than five kingdoms, and the fungi have one all to themselves.

Fungi have been getting a lot of ink lately. In 1992 a paper in *Nature* reported that a single fungus in the Upper Peninsula of Michigan covers 30 acres, is at least 1,500 years old and weighs in excess of ten tons. This extraordinary finding was not only quickly topped but demolished by a fungus in Washington State that covers two and a half square miles, or 1,600 acres.

What finally caught my attention, however, was a report in *Science* earlier this year that made the fungi practically family (that is not a reference to the ones that live on me at the moment). Biologists at Rutgers University and at the Marine Biology Laboratory at Woods Hole, Massachusetts, performed a molecular study that suggests the animals (including us) and the fungi are descended from a common ancestor, a single-celled microscopic creature with a tail. The scientists worked their way back from recently evolved organisms to those that appeared in the distant past, studying changes in the genes in those parts of cells that manufacture proteins.

The genealogical line that was to produce the animal and fungus kingdoms split off from the one that would produce plants about 1.1 billion years ago (it is not so clear yet when the line of descent that would produce animals and fungi broke into two paths). This means,

Fungal stalks grow upward through carcass of a butterfly larva. A spore landed on live caterpillar, bored in, germinated and fed on its victim.

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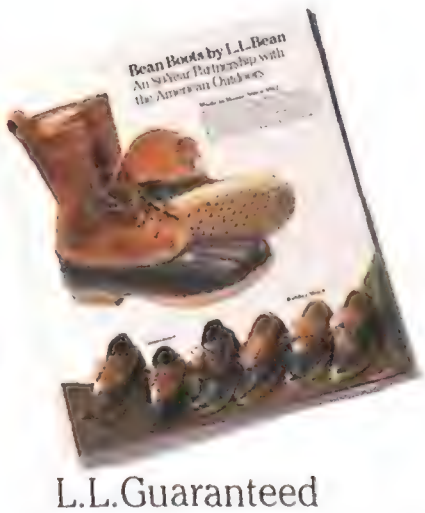

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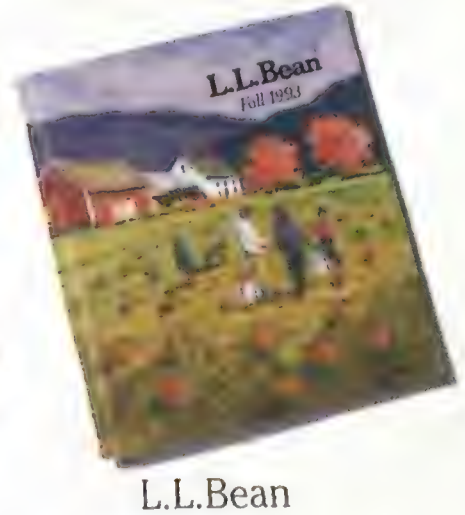

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first of all, that mycologists, who study fungi, probably should be moved from the botany to the zoology department. But it means a good deal more. As Natalie Angier reported in the *New York Times,* this new understanding helps explain why fungal diseases in humans, especially those with compromised immune systems, are so difficult to treat. The metabolism of fungi and people is similar enough that anything that attacks the fungus attacks the human host as well. Even further, it means that we can use yeast (part of the fungus kingdom), for example, to study biological problems that humans face.

The news kept coming. A month later another team of molecular biologists, this one at the Université Laval in Quebec, reported, again in *Science,* that some of the most common fungi involved in symbiosis with plant roots appeared sometime about 350 million to 450 million years ago and apparently made it possible for plants to colonize the land. This last is the key to my sudden interest in something that all biologists have known about all their lives: the fungi are the sine qua non of life as we know it. Just to make sure I didn't miss the point, the *New York Times* ran an article about "rhizonauts," biologists who study the root zone, on the weekend that I was writing this column. It spoke of the mycorrhizae, fungi that live in symbiosis with plant roots, getting carbohydrates from the plant, and in exchange, assisting the plant in obtaining phosphates–one nutrient that plants usually cannot get enough of–from the surrounding soil.

That reminded me of a still more complex relationship laid out in a book by a charismatic forester named Chris Maser. In *The Redesigned Forest,* he describes the relationship between fungi, flying squirrels and trees in the Pacific Northwest. Fungi attach themselves to the growing root tips of a tree. The tree supplies the fungi with sugars and other metabolites (like animals, they lack chlorophyll and cannot photosynthesize their own carbohydrates). The fungi absorb minerals, other nutrients and water from the soil and translocate them into the host. Some fungi produce compounds that keep pathogens away from the root system. In nearly all cases, nitrogen-fixing bacteria live in the clump of fungal filaments and root tips, using a fungal extract as food and supplying nitrogen in a usable form to the tree.

At night the flying squirrels come down to the ground and feed on the sporocarps, or mushrooms, of the fungi, finding them by their odor and digging them out. Later the squirrels deposit, all over the forest, fecal pellets that are worth their weight in gold: each pellet inoculates the ground with mycorrhizal fungi, nitrogen-fixing bacteria and nutrients the bacteria need to get started.

When I was working on a column about gardening for last May's issue, I read David Bodanis' *The Secret Garden* and ended up wanting to write "A Salute to Our Friends the Fungi." Bodanis describes a blade of grass under chemical attack from a newly sprouted weed on a perfectly ordinary lawn. The blade sends a chemical distress signal out from its roots, and soon the cavalry comes riding in. Fungi send one arm toward the distressed plant and another toward a healthy one. The fungi then pump nutrients from the healthy to the besieged, sending out as many more arms as are needed for more supplies.

Since then, more tidbits have popped up. In April *Science* carried a news item on two Montana State University researchers who had found a fungus that produces taxol, an anticancer drug. This fungus grows on yew trees, which were once in danger of extinction for the taxol in their bark. But the fungus produces taxol even when it is removed from the tree. This means a drug company could grow large quantities of fungi in vats and lower the cost of the drug.

In July *Chemical & Engineering News* reported the commercial testing of a common wood-rotting fungus to see if it will really clean up contaminated soils the way bacteria can (SMITHSONIAN, April 1993). Apparently it works on DDT, TNT, creosote, coal tars and heavy fuel. It is not yet clear if the fungus will work as well as hoped, but at least three companies are giving it a shot.

Without those wood-rotting fungi, a forest would eventually suffocate in its own debris. What I didn't know until I saw an article in *Natural History,* my alma mater, was that some of these same fungi are–don't laugh–vicious predators. In the words of author George Barron, they lure, trap, lasso, paralyze, colonize or dissolve their live victims. My favorite is one that forms baited rings with its filaments; when a nematode blunders into a ring, the cells of the ring blow up to three times their normal size in a tenth of a second, crushing the nematode. Filaments then invade its body and digest it from the inside.

Until now, most of my contact with fungi has been at the supermarket, picking out *Agaricus brunnescens* grown in horse manure in the dark cellars of Kennett Square, Pennsylvania. When I'm lucky it's shiitake, grown on 20,000 oak logs in an abandoned warehouse by the enterprising citizens of Paw Paw, West Virginia. I'm always taken aback when the leader of a bird walk goes leaping off into the bushes because he has spotted morels. And even now I find myself studiously avoiding the chapters on molds and yeasts in biology texts (partly because it would be hard to sell the boss an article entitled "The Miracle of Mildew").

Dread begins to mix with excitement. How many more "dark matter" parts of the natural world are still out there for me to finally comprehend? Are soil bacteria to be next, so that I spend my declining years at a desk covered with vials of garden dirt, peering through a microscope and wishing the world were a simpler place? Even if there are not so many universes left, does all this mean that before I go roaring off in search of the exotic and spectacular, I should devote all my energy to one measly square yard of overgrown field until I understand everything there? No African safaris until I actually see a fungus crush a nematode? No scarlet macaws until I've charted the biodiversity of my lawn?

I think I'll cheat.

John P. Wiley jr.

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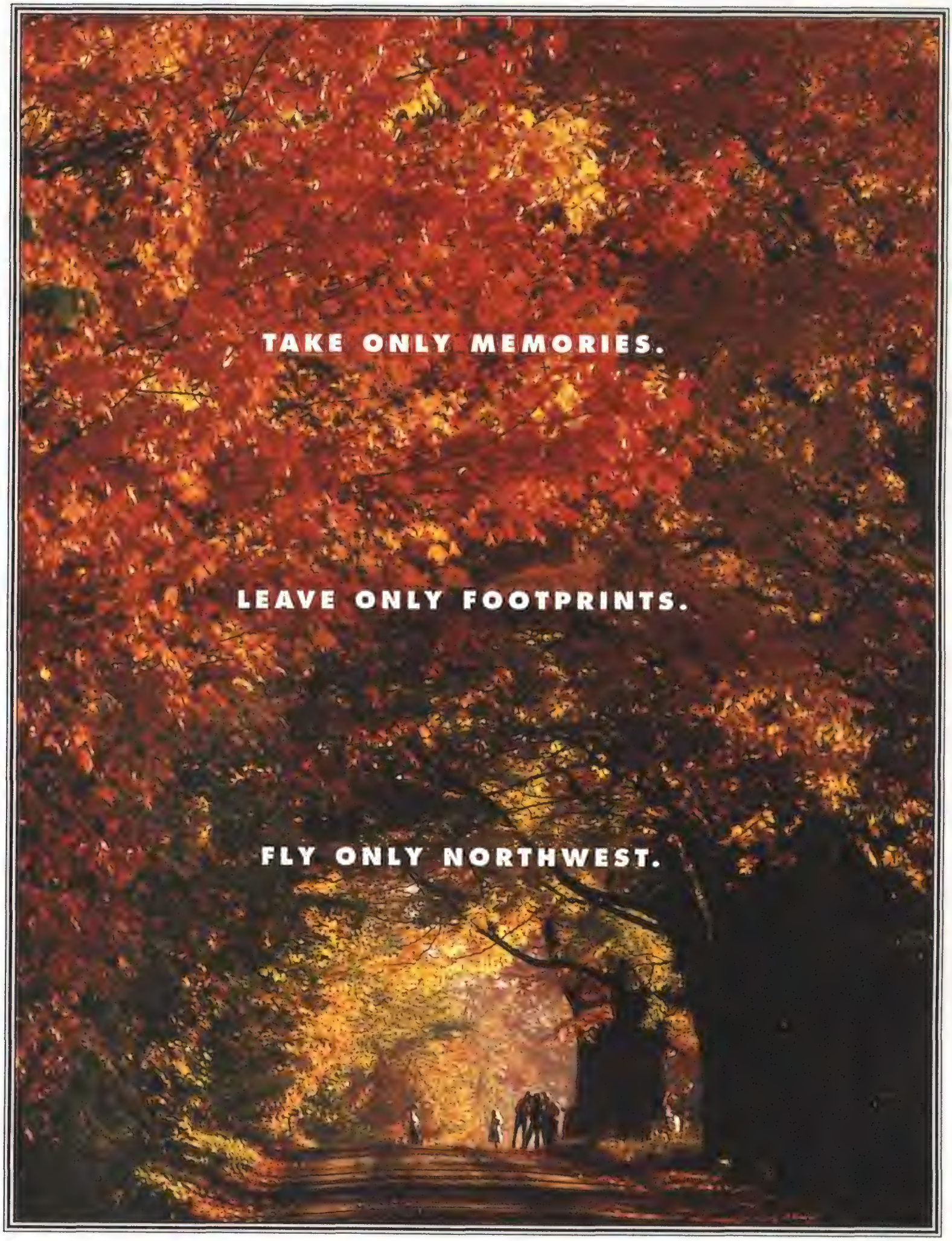

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The object at hand

A baby rattle invokes the frenzy of adulation that once made Columbus an American hero for all seasons

That's Columbus on the baby rattle, all right. But even a cursory glance will tell you that the image has nothing to do with last year's lingering, not to say interminable, Quincentennial celebration. Why? Because this Columbus portrait shows the stately figure we used to admire so much, while today the reputation of the Admiral of the Ocean Sea seems permanently tarnished.

This rattle was manufactured a century ago during a frenzy of adulation and misinformation that was largely responsible for making Columbus our hero for all seasons. The celebrations of the Quadricentennial lasted well into 1893, when the World's Fair opened in Chicago as the "Columbian Exposition." The rattle, now in the collection of the Smithsonian's National Museum of American History, was originally sold at the Exposition along with much other Columbus memorabilia. Almost weightless and about the size of a baseball, it was made of Celluloid, then a revolutionary new material created by combining cellulose nitrate and camphor, and used to replace ivory in the manufacture of billiard balls.

The portrait on the rattle–a pleasant, if crudely rendered drawing of the Admiral with a Dutch-boy haircut–resembles a famous 16th-century painting by Italian master Sebastiano del Piombo. To make it a more attractive take-home souvenir for Americans, it was prettied up with a pair of lithographed flags bearing an inaccurate version of Columbus' coat of arms, and a pair of American flags that have only 12 stars each.

Anyone who found our recent round of Columbus-bashing tedious should look back a century, when the orgy of celebration was even worse. Like Michael Jordan or Madonna in the 1990s, in the 1890s Columbus suddenly went on view everywhere–on matchboxes and buggies, postal cards and commemorative plates. A Columbus doll came topped with an ostrich plume; a mechanized Columbus toy bank featured the Admiral and an Indian greeting each other with outstretched arms.

In excesses of scholarly enthusiasm, biographers and textbook writers of the 19th century falsely authenticated old myths and invented new ones. Even 1992's onslaught of revisionism hasn't entirely laid to rest some of their handiwork. As the 1992 anniversary approached, one of the major scholarly chores for historians was scraping away the layers of bunkum under which 19th-century scholarship (and showmanship) had buried Columbus. Inevitably among them: the story that Queen Isabella hocked her jewels to finance his voyage of discovery, and the notion that by reaching the Caribbean, Columbus proved the world is round.

In 1893 even the U.S. Post Office joined in the distortion by issuing a series of commemorative stamps overdramatizing events in the Admiral's life, including Columbus' first landing and his triumphant return to Spain.

A century ago many ethnic and religious groups, far from carrying on about the man's politically incorrect actions, scrambled to claim the Admiral as one of their own. Anglo-Americans staked their claim by suggesting that this late medieval Italian who sailed for Spain was actually preparing the way for Englishmen. Some Catholics, led by a French writer named Antoine Roselly de Lorgues, kept insisting that Columbus be elevated to sainthood for bringing the "Christian faith to half the world." (As early as 1867 de Lorgues had formally petitioned the pope to canonize Columbus.) In 1882 Irish-Catholic Americans honored the Admiral by making him the namesake of their new fraternal order, the Knights of Columbus. And during the Quadricentennial, American Jews held special sabbath services in Columbus' honor, considering him, in the words of one rabbi, "the hero who founded a haven of repose for our noble race."

Baseball-size toy was one of scores of Columbus items sold at 1893 World's Fair.

African-Americans had their own claim to stake. While petitioning the Columbian Exposition to include exhibits documenting nearly three decades of black freedom since the Civil War, black leaders lauded Columbus as the founder of a country dedicated to progress. The organizers of the fair rebuffed the proposal. Although there was a special "Colored People's Day" during the Exposition, the only black official at the fair was Frederick Douglass, chosen to represent the Republic of Haiti. (The only restrooms on the fairgrounds that black visitors were allowed to use were in the Haiti Building.)

Native Americans presented an even more special case. The Quadricentennial occurred just two years after the cavalry massacre of Sioux villagers at Wounded Knee, and at the Chicago fair a year later, there was a keen interest in Indian artifacts–which accounted for more than half the contents of the fair's Anthropology Building. But live Indians were scarce, appearing mostly as curiosities. The year before the fair opened, during the 1892 Columbus Day parade in New York, Native Americans both "wild" and educated strode down Columbus Avenue. The "wild" wore feathers and war paint; the educated–bespectacled students from the Carlisle Indian School in Carlisle, Pennsylvania–were praised in newspaper accounts for their aristocratic carriage. Those few speakers who mentioned Native Americans at all observed that the benefits brought them following the arrival of Columbus and European culture far outweighed any disadvantages.

The fair boasted a Columbian Fountain, supposedly adapted from a design drawn by Columbus himself. Not far

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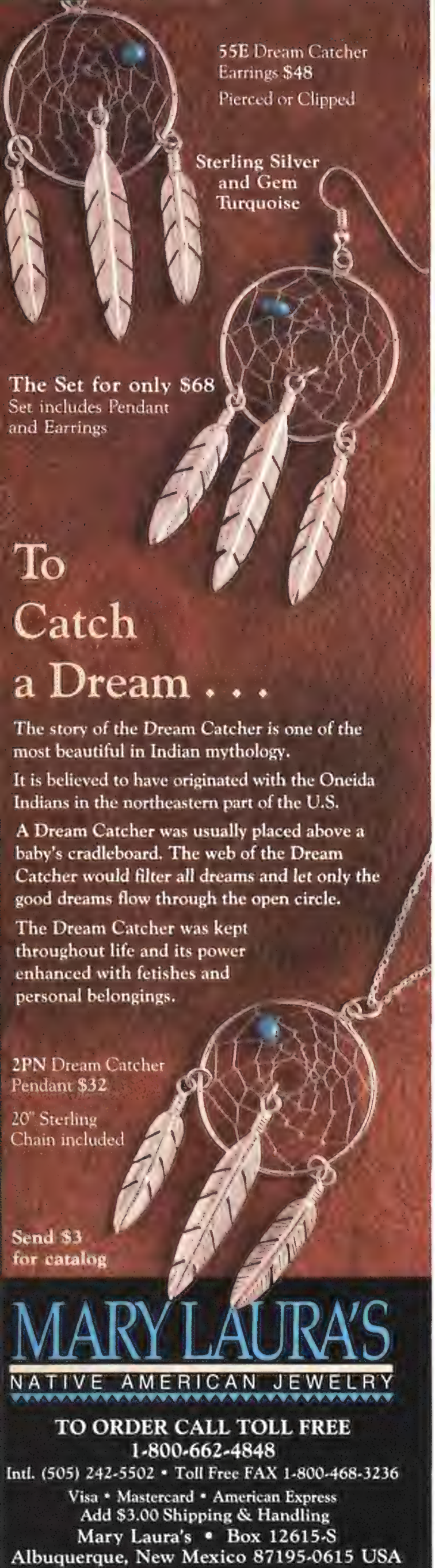
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At the fair, the circular Columbian Fountain–supposedly based on Columbus' own design–had a place of honor in front of domed Administration Building.

away, on the other side of the fair's Agriculture Building, three small ships with masts were moored at the South Inlet off Lake Michigan. They were billed as authentic life-size facsimiles of the *Niña*, the *Pinta* and the *Santa María*. But two of the vessels had proved so unseaworthy that they had to be towed across the Atlantic from Spain. (The three Columbus ship replicas built for the 1992 Quincentennial were hardly more accurate–since we still don't know the original ships' exact dimensions or precisely what they looked like–but they did manage to get across the Atlantic on their own.)

Nothing at the 1893 fair exemplified the mythmaking that still haunts us better than the chief Columbian shrine at the Exposition: a life-size reproduction of *La Rábida*, the monastery near Palos, Spain, where Columbus planned his first voyage. The fair's *La Rábida* was intended to contain "every existing relic of Columbus." There were in fact a few items from Columbus' lifetime on display. But most objects were not genuine, including a replica of what was thought to be Columbus' casket, and a locket containing a pinch of dust from his supposed remains. Exhibit curators also hung a series of sketches and photographs that purported to show sites from Columbus' journeys, including the spot on the island in the Bahamas where the Admiral first landed, and the site in the present-day Dominican Republic where Columbus founded the settlement of Isabela. The men who set out to document the points of contact photographed sites that they thought were the most likely candidates–but no one at that time knew where these places really were.

At the 1992 World's Fair in Seville, I understand, Christopher Columbus was largely invisible. No towering Columbus statues, few murals or grandiose scenes painted in oils. If the 1992 doings generally seemed protracted and downbeat, it was partly because those a century ago–and after–were so irrepressibly upbeat. Where historic heroes are concerned, cooling the cult of personality isn't half as much fun as climbing on the bandwagon. In that connection, this column offers a good way to say, at least for 1992-93, "Goodbye, Columbus." With a little envy for the innocent baby who could just enjoy that toy rattle for what it was, and delight in its soothing *shish-shish* sound and the picture of a man in a funny-looking hat.

David Ewing Duncan

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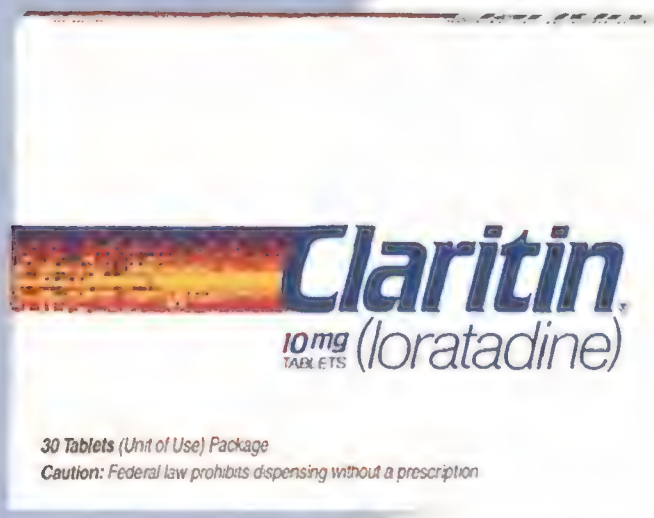

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(For full Prescribing Information, see package insert.)

INDICATIONS AND USAGE
CLARITIN Tablets are indicated for the relief of nasal and non-nasal symptoms of seasonal allergic rhinitis.

CONTRAINDICATIONS
CLARITIN Tablets are contraindicated in patients who are hypersensitive to this medication or to any of its ingredients.

PRECAUTIONS
General: *Patients with liver impairment should be given a lower initial dose (10 mg every other day) because they* have reduced clearance of CLARITIN Tablets.

Drug Interactions: Drugs known to inhibit hepatic metabolism should be coadministered with caution until definitive interaction studies can be completed. The number of subjects who concomitantly received macrolide antibiotics, ketoconazole, cimetidine, ranitidine, or theophylline along with CLARITIN Tablets in controlled clinical trials is too small to rule out possible drug-drug interactions. There does not appear to be an increase in adverse events in subjects who received oral contraceptives and CLARITIN Tablets compared to placebo.

Carcinogenesis, Mutagenesis, and Impairment of Fertility: In an 18-month oncogenicity study in mice and a 2-year study in rats, loratadine was administered in the diet at doses up to 40 mg/kg (mice) and 25 mg/kg (rats). In the carcinogenicity studies, pharmacokinetic assessments were carried out to determine animal exposure to the drug. AUC data demonstrated that the exposure of mice given 40 mg/kg of loratadine was 3.6 (loratadine) and 18 (active metabolite) times higher than a human given 10 mg/day. Exposure of rats given 25 mg/kg of loratadine was 28 (loratadine) and 67 (active metabolite) times higher than a human given 10 mg/day. Male mice given 40 mg/kg had a significantly higher incidence of hepatocellular tumors (combined adenomas and carcinomas) than concurrent controls. In rats, a significantly higher incidence of hepatocellular tumors (combined adenomas and carcinomas) was observed in males given 10 mg/kg and males and females given 25 mg/kg. The clinical significance of these findings during long-term use of CLARITIN Tablets is not known.

In mutagenicity studies, there was no evidence of mutagenic potential in reverse (AMES) or forward point mutation (CHO-HGPRT) assays, or in the assay for DNA damage (Rat Primary Hepatocyte Unscheduled DNA Assay) or in two assays for chromosomal aberrations (Human Peripheral Blood Lymphocyte Clastogenesis Assay and the Mouse Bone Marrow Erythrocyte Micronucleus Assay). In the Mouse Lymphoma Assay, a positive finding occurred in the non-activated but not the activated phase of the study.

Loratadine administration produced hepatic microsomal enzyme induction in the mouse at 40 mg/kg and rat at 25 mg/kg, but not at lower doses.

Decreased fertility in male rats, shown by lower female conception rates, occurred at approximately 64 mg/kg and was reversible with cessation of dosing. Loratadine had no effect on male or female fertility or reproduction in the rat at doses of approximately 24 mg/kg.

Pregnancy Category B: *There was no evidence of animal teratogenicity in studies performed in rats and rabbits. There* are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, CLARITIN Tablets should be used during pregnancy only if clearly needed.

Nursing Mothers: Loratadine and its metabolite, descarboethoxyloratadine, pass easily into breast milk and achieve concentrations that are equivalent to plasma levels with an AUC_{milk}/AUC_{plasma} ratio of 1.17 and 0.85 for the parent and active metabolite, respectively. Following a single oral dose of 40 mg, a small amount of loratadine and metabolite was excreted into the breast milk (approximately 0.03% of 40 mg over 48 hours). A decision should be made whether to discontinue nursing or to discontinue the drug, taking into account the importance of the drug to the mother. Caution should be exercised when CLARITIN Tablets are administered to a nursing woman.

Pediatric Use: *Safety and effectiveness in children below the age of 12 years have not been established.*

ADVERSE REACTIONS
Approximately 90,000 patients received CLARITIN Tablets 10 mg once daily in controlled and uncontrolled studies. Placebo-controlled clinical trials at the recommended dose of 10 mg once a day varied from 2 weeks' to 6 months' duration. The rate of premature withdrawal from these trials was approximately 2% in both the treated and placebo groups.

REPORTED ADVERSE EVENTS WITH AN INCIDENCE OF MORE THAN 2% IN PLACEBO-CONTROLLED ALLERGIC RHINITIS CLINICAL TRIALS

	PERCENT OF PATIENTS REPORTING			
	LORATADINE 10 mg QD n = 1926	**PLACEBO** n = 2545	**CLEMASTINE** 1 mg BID n = 536	**TERFENADINE** 60 mg BID n = 684
Headache	12	11	8	8
Somnolence	8	6	22	9
Fatigue	4	3	10	2
Dry Mouth	3	2	4	3

Adverse event rates did not appear to differ significantly based on age, sex, or race, although the number of non-white subjects was relatively small.

In addition to those adverse events reported above, the following adverse events have been reported in 2% or fewer patients.

Autonomic Nervous System Altered salivation, increased sweating, altered lacrimation, hypoesthesia, impotence, thirst, flushing.

Body As A Whole Conjunctivitis, blurred vision, earache, eye pain, tinnitus, asthenia, weight gain, back pain, leg cramps, malaise, chest pain, rigors, fever, aggravated allergy, upper respiratory infection, angioneurotic edema.

Cardiovascular System Hypotension, hypertension, palpitations, syncope, tachycardia.

Central and Peripheral Nervous System Hyperkinesia, blepharospasm, paresthesia, dizziness, migraine, tremor, vertigo, dysphonia.

Gastrointestinal System Abdominal distress, nausea, vomiting, flatulence, gastritis, constipation, diarrhea, altered taste, increased appetite, anorexia, dyspepsia, stomatitis, toothache.

Musculoskeletal System Arthralgia, myalgia.

Psychiatric Anxiety, depression, agitation, insomnia, paroniria, amnesia, impaired concentration, confusion, decreased libido, nervousness.

Reproductive System Breast pain, menorrhagia, dysmenorrhea, vaginitis.

Respiratory System Nasal dryness, epistaxis, pharyngitis, dyspnea, nasal congestion, coughing, rhinitis, hemoptysis, sinusitis, sneezing, bronchospasm, bronchitis, laryngitis.

Skin and Appendages Dermatitis, dry hair, dry skin, urticaria, rash, pruritus, photosensitivity reaction, purpura.

Urinary System Urinary discoloration, altered micturition.

In addition, the following spontaneous adverse events have been reported rarely during the marketing of loratadine: peripheral edema; abnormal hepatic function including jaundice, hepatitis, and hepatic necrosis; alopecia; seizures; breast enlargement; erythema multiforme.

OVERDOSAGE
Somnolence, tachycardia, and headache have been reported with overdoses greater than 10 mg (40 to 180 mg). In the event of overdosage, general symptomatic and supportive measures should be instituted promptly and maintained for as long as necessary.

Treatment of overdosage would reasonably consist of emesis (ipecac syrup), except in patients with impaired consciousness, followed by the administration of activated charcoal to absorb any remaining drug. If vomiting is unsuccessful, or contraindicated, gastric lavage should be performed with normal saline. Saline cathartics may also be of value for rapid dilution of bowel contents. Loratadine is not eliminated by hemodialysis. It is not known if loratadine is eliminated by peritoneal dialysis.

Oral LD_{50} values for loratadine were greater than 5000 mg/kg in rats and mice. Doses as high as 10 times the recommended clinical doses showed no effects in rats, mice, and monkeys.

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Regular hours resume

Smithsonian museums are now operating on regular hours, 10 A.M. to 5:30 P.M. daily, except December 25. Hours for the Anacostia Museum are 10 A.M. to 5 P.M. daily. Hours at the National Zoo are 9 A.M. to 4:30 P.M. daily for buildings, and 8 A.M. to 8 P.M. for grounds, through October 15, and from 8 A.M. to 6 P.M. beginning October 16.

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The Smithsonian is celebrating Hispanic Heritage Month, September 15-October 15, with a variety of programs. For information call (202) 357-2700, 9 A.M. to 4 P.M., Monday through Saturday. For a 24-hour recording call (202) 357-4574 (English) or (202) 633-9126 (Spanish).

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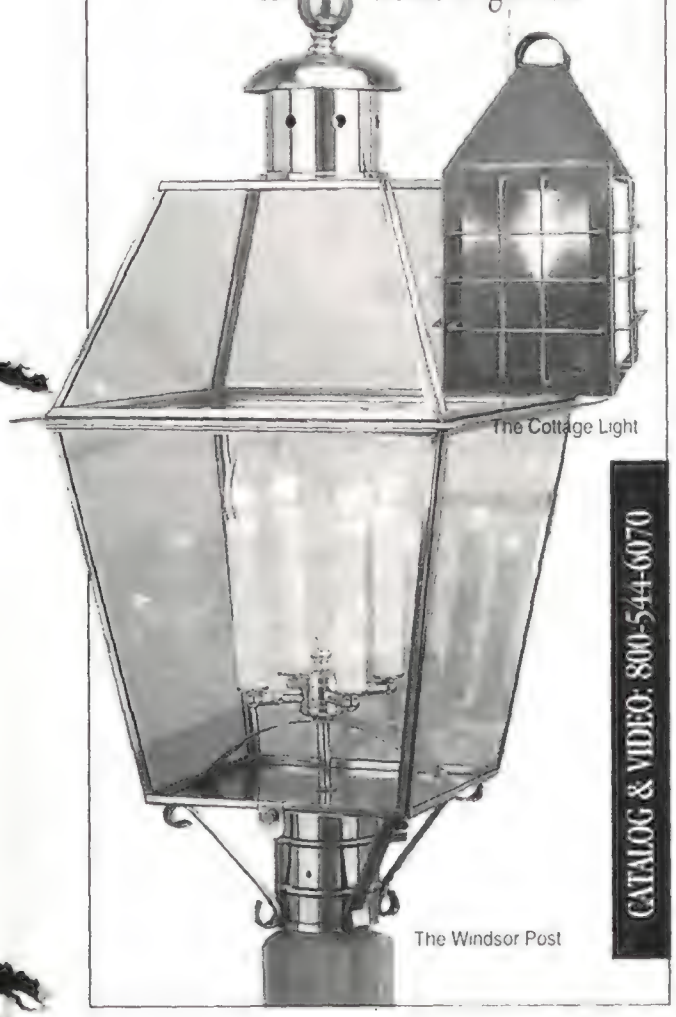

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Special October exhibits, events

Renwick Gallery
The Arts and Crafts Movement in California: Living the Good Life (October 8-January 9, 1994) Exhibition highlights the contribution of California artists to the Arts and Crafts movement in the United States from 1895 to 1930. See *Highlights continued*, page 38.
American Crafts: The Nation's Collection (runs indefinitely) Selection from the permanent collection features 19th- and 20th-century pieces by nationally prominent artists.

National Museum of American Art
Jacob Kainen (through January 2, 1994) Major retrospective of one of America's foremost colorists. Works of the Washington, D.C. artist range from early expressive cityscapes to recent large-scale abstractions.
The Arvin Gottlieb Collection: Paintings from the American Southwest (through March 20, 1994) Exhibit features most of the major painters who worked in New Mexico between 1900 and 1940, including Kenneth Adams, Oscar Berninghaus and Joseph Henry Sharp.

National Portrait Gallery
James VanDerZee Photographs (October 22-February 13, 1994) Images of artists, musicians, politicians, sportsmen and entrepreneurs who lived during the Harlem Renaissance, the Great Depression and the Swing era of the 1920s and '30s.
20th-Century Self-Portraits from the National Portrait Gallery Collection (October 22-February 13, 1994) Assembled from the gallery's permanent collection, show includes works by such noted American artists as Richard Avedon, George Bellows and Alexander Calder.
Contemporary Self-Portraits from the James Goode Collection (through December 5) Former curator of the Smithsonian Institution "Castle," James Goode is a collector and author. Exhibit features 25 likenesses from the late 1970s and '80s, ranging in style from caricature to photorealism.

Mountain Form #2 by Victor Higgins is in NMAA's "The Arvin Gottlieb Collection."

Hirshhorn Museum & Sculpture Garden
Willem de Kooning from the Hirshhorn Museum Collection (October 21-January 9, 1994) Paintings, drawings and sculptures from 1939 to 1985 by the Dutch-born American pioneer of Abstract Expressionism. Show honors the artist's 90th birthday.

National Air and Space Museum
Monitoring Amazonia from Space (October 8-March 1994) How modern satellite technology is being used to monitor the development and degradation of Amazonia's complex ecosystem.
Air Power in World War II: The Arado 234B Blitz (October 26-August 1994) Exhibit showcases an original Arado 234 German jet aircraft that was used at the end of World War II.
Universe of Illusions (opens October 30) New Einstein Planetarium show takes a look at some of the mystery in the history of space exploration.
A "Blueprint for Space" (through April 1994) Collection of artworks of space imagery commissioned in the 1950s by *Collier's* magazine.
Tropical Rainforest (6:45 P.M. on selected evenings) Imax film probes the opposing forces of creation and destruction in the world's tropical rain forests.

National Museum of American History
World War II GI: The American Soldier's Experience (opens October 29) New permanent exhibit examines experience of average American soldier in World War II.
Cesar Chavez: An Enduring Spirit, 1927-1993 (through October 15) Exhibit documents Chavez's contribution as president of the United Farm Workers Union.
Tunnels! (through March 15, 1994) How various tunnel adaptations have met the needs of growing cities and countries–rare books and manuscripts dating from the Renaissance.
American Encounters Permanent exhibit focuses on the American Indian, Hispanic and Anglo-American cultures of New Mexico's Upper Rio Grande Valley.

National Postal Museum
The Smithsonian's newest museum, located next to Union Station on Capitol Hill, presents exhibitions tracing the history of the nation's mail service. Topics range from the Colonial Post and the Pony Express to the art of letter writing and the beauty and lore of stamps.
The Madden Family Letters (through July 30, 1994) Traces an African-American family for five generations (1740-1992).

National Museum of Natural History
Chiefly Feasts: The Enduring Kwakiutl Potlatch (October 29-March 6, 1994) The art and culture of one of the most unusual and important Northwest Coast Native American ceremonies.
O. Orkin Insect Zoo The insect zoo has reopened after extensive renovation. Featured are various insect habitats–mangrove, desert, walk-through rain forest–an unusual view of insects in your home, a beehive and an African termite mound.

National Zoological Park
Amazonia Permanent installation re-creates a microcosm of the world's largest rain forest and river habitat, and explores the wonders of this richly diverse ecosystem.

Freer Gallery of Art
America Meets Asia Newly renovated and reinstalled galleries feature Asian and 19th- and early 20th-century American art, including the world's most important collection of works by James McNeill Whistler.
Luxury Arts of the Silk Route Empires (runs indefinitely) Adjoining galleries showcase objects from the Freer and Sackler collections that trace the cultural interchange along the Silk Route, from China to the Mediterranean.

Arthur M. Sackler Gallery
The Divine Word of Islam (through January 2, 1994) Seventeen works, dating

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from the 14th through 18th centuries, featuring bound manuscripts of the Koran and books of prayer. Objects are from Egypt, Iran and Turkey.
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National Museum of African Art
Dreaming the Other World (through November 30) Exhibit examines the belief of the Baule peoples of central Côte d'Ivoire in mirror-image, or "Other World," mates.
Astonishment and Power: Kongo Minkisi and the Art of Renée Stout (through January 2, 1994) Exploration of both the *minkisi* tradition of the Kongo peoples of central Africa and the contemporary art of Renée Stout, an African-American artist who draws on their traditions.

Anacostia Museum
Always There: African-American Presence in American Quilts (through October 17) A variety of 19th- and 20th-century quilts, photographs and personal objects.

International Gallery, S. Dillon Ripley Center
The Power of Maps (November 9-January 23, 1994) Organized by the Cooper-Hewitt Museum, exhibition of more than 300 historical and contemporary maps, dating from 1500 B.C. to the present, examines their significance as instruments of communication, persuasion and authority (SMITHSONIAN, February 1993).

Cooper-Hewitt Museum (New York)
Fancy Fronts: Men's Waistcoats from the Eighteenth Century (October 19-February 13, 1994) Display of European waistcoats examines men's vests from the 18th and early 19th centuries as articles of clothing, documents of social, political and economic status, and as works of creativity and technical skill.
Toward Modern Design: Revival and Reform (through January 2, 1994) The development of the modern sensibility in 19th-century Europe and America, with special emphasis on the Art Nouveau movement.
Mechanical Brides: Women and Machines, from Home to Office (through January 2, 1994) The changing forms and meanings of domestic appliances and office equipment, and a celebration of the efforts of the women who have used them.

Exhibition catalogs

Catalogs available currently include:
Contemporary Self-Portraits ($2.50 paper)
American Wicker ($45/$25 paper)
A Blueprint for Space ($60/$24.95 paper)
Shared Visions ($20 paper)
Astonishment and Power: Kongo Minkisi/ The Art of Renée Stout ($34.95 paper)
American Encounters ($8.95 paper)

To order, send check or money order to Smithsonian Museum Shops, 8308 Cinder Bed Road, Newington, Virginia 22122. Please include 15 percent of purchase price to cover postage and handling (minimum, $1.75).

Office of Elementary and Secondary Education

The Office of Elementary and Secondary Education (OESE) offers a variety of programs, publications and services for teachers of prekindergarten through grade 12 nationwide. To request information on how to order a copy of the recently produced educational portfolio entitled *Blues in America: A Social History,* designed for middle school teachers of music and social studies, write to: OESE, Smithsonian Institution, Arts & Industries Building 1163, MRC 402, Washington, D.C. 20560, or call Golden Owl Publishing Company at (914) 962-6911.

Smithsonian on the air

Smithsonian Presents Invention Series of half-hour television programs explores the spirit of innovation behind everyday and extraordinary inventions. Tuesdays at 9 P.M., EST, on the Discovery Channel. Check local cable listings.

To obtain a free listing of Smithsonian home video titles, which includes the *Invention* series, write: Office of Telecommunications, Smithsonian Institution, American History Building, MRC 645, Washington, D.C. 20560.

Pretty Maid 1950s toy washing machine is in "Mechanical Brides" at Cooper-Hewitt.

Smithsonian National Associates

The National Associates Program U.S. and International Events comes to Fresno, California, October 21-24. The program will feature lectures on landscape painting, the world in 1492, and American folk songs and ballads. Associates in Fresno will receive invitational brochures. For information, contact: U.S. and International Events, 490 L'Enfant Plaza, S.W., Suite 4210, Washington, D.C. 20560; (202) 287-3210.

Resident Associate Program

To become a Resident Associate, or for fee and ticket information, call (202) 357-3030. October events include:
The Virtual Community: Finding Connections in a Computerized World (October 25; 8 P.M.) Technology guru Howard Rheingold examines the philosophical, cultural and legal issues involved in computerization.
Ballethnic Dance Company (October 24; 6 P.M.) Performance blends traditional ballet with artistic influences of African-American and other cultures.
Red and the Colonel: A Radio Friendship (October 18; 8 P.M.) Radio host Bob Edwards reminisces about Red Barber.

Smithsonian Institution Traveling Exhibition Service

SITES organizes and circulates exhibitions to cities throughout the United States and abroad. To sponsor a show in your community, write SITES, Smithsonian, Washington, D.C. 20560. Here are some October exhibits:

- Cleveland, Ohio (October 12-January 4) *Tropical Rainforests: A Disappearing Treasure,* Cleveland Museum of Natural History.
- New York City (October 16-March 20) *Beyond Category: The Musical Genius of Duke Ellington,* Museum of the City of New York.
- San Diego, California (October 16-December 12) *Two Eagles/Dos Aguilas: A Natural History of the Mexico-U.S. Borderlands,* San Diego Natural History Museum.

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A sampling of the cult's prolific and diverse output is at the National Museum of American Art's Renwick Gallery through January 9, 1994. "The Arts and Crafts Movement in California: Living the Good Life," organized by the Oakland Museum, showcases nearly 200 objects–from art pottery, ceramic tiles and wood furniture to metalwork and graphics.

"What most distinguished the California movement was its special bond with nature," says the show's curator, Kenneth Trapp. "Whether depicting the golden poppy, the Torrey pine or the majesties of Yosemite, California's artists extolled the state's natural beauty. In this preindustrial paradise, the Arts and Crafts movement in America achieved its ideal."
Diane M. Bolz

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A simple, modernist California faience vase (c. 1925) boasts multicolored design.

Golden poppy graces painted wood and gilt box (1929) made by Lucia K. Mathews.

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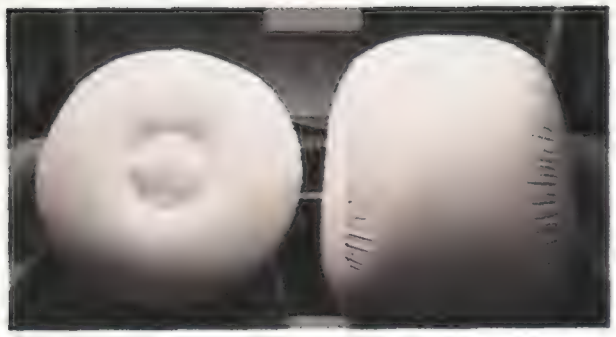

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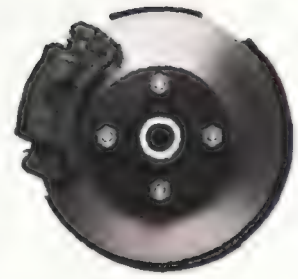

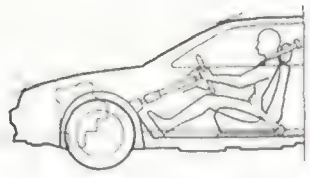

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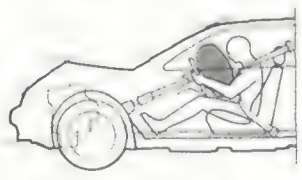

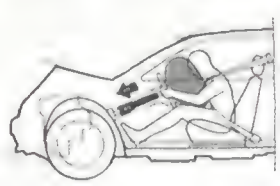

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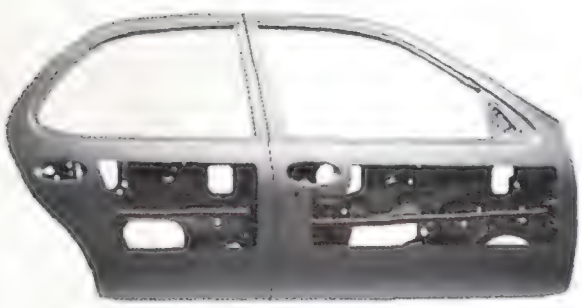

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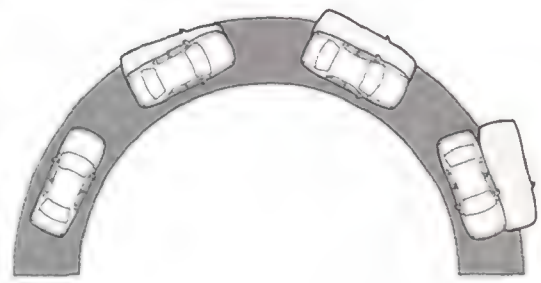

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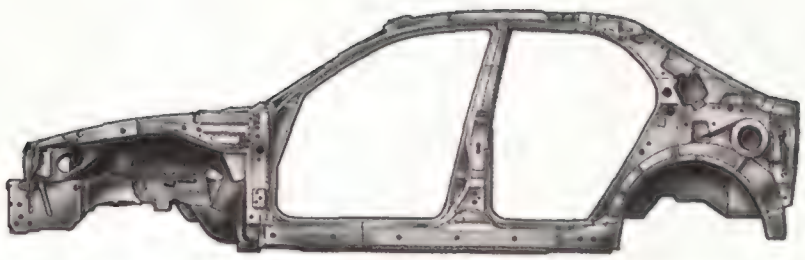

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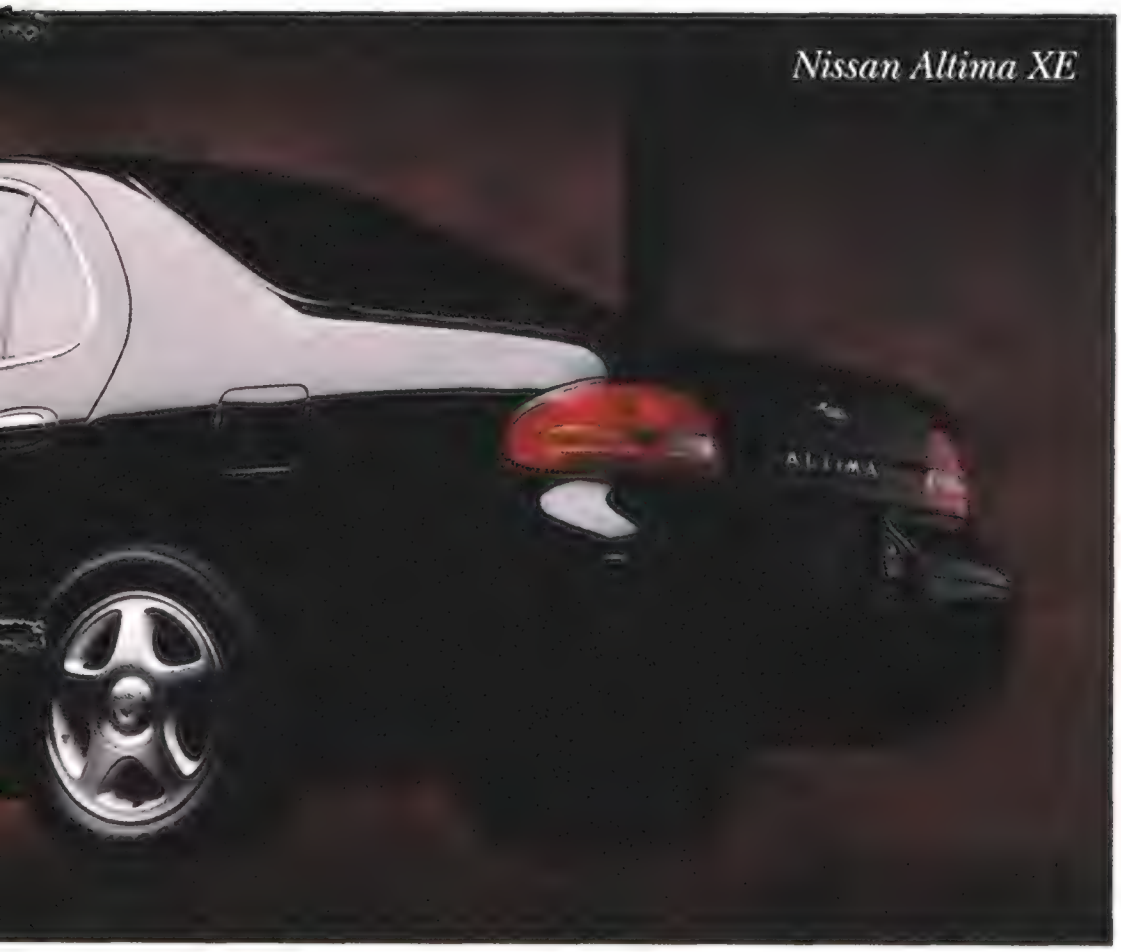

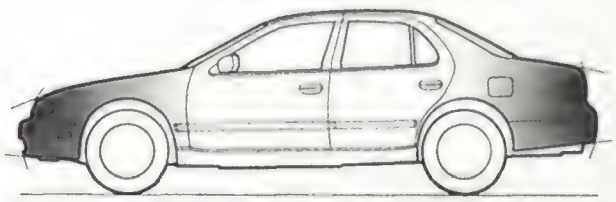

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By Edwin Kiester jr.

A new park saved the tall trees, but at a high cost to the community

Gus Peterson, 84, stands in the ruins of what once was his sawmill; park formation cut off his supply.

Fifteen years after Redwood National Park attained its final size, the surrounding area is still searching for economic recovery

The trees are house-tall now, reaching toward the 350-foot heights they may eventually attain. On once cutover slopes below the Tall Trees Overlook in California's Redwood National Park, the young redwoods now march downhill, to the bend in Redwood Creek where the world's tallest trees rise out of the mist. Green stripes of grasses and hardwoods mark where old logging roads have been bulldozed and the hill graded back to its natural contours. In the rushing waters below, salmon and steelhead trout can again head upstream to spawn.

Art Eck, deputy superintendent of the park, looks about him approvingly. The overlook's display of before-and-after photographs contrasts the scene with the hillside as it looked a few years ago: an ugly battlefield of stumps, slash and chewed-up earth crisscrossed by the gashes of roads and skid trails. Now, thanks to the restoration effort, the forest is returning to its past appearance, before the saws and axes came. "The land is healing," Eck says proudly. "But of course, some scars still show."

Sentenced to hard times and heartbreak

Yes, the scars of Redwood National Park do show, and not only on the greening hillsides above Redwood Creek. Twenty-five years after the establishment of the nation's first billion-dollar national park, 15 years after an expansion more than doubled its size (SMITHSONIAN, July 1978), the trees are coming back, but the painful wounds left by a bitter battle over the park formation remain raw in the lives of the people. Loggers and former loggers, businessmen selling to loggers, and local officials of California's two northernmost coastal counties insist that establishing the park with 78,000 acres of prime timberland triggered a downward economic spiral that stole good-paying jobs, savaged the timber industry and sentenced the area to chronic hard times and heartbreak: "We are fast becoming the Appalachia of the West," one ex-logger maintains. Environmentalists and champions who fought for the park maintain that the jobs would have been lost within a few years anyway, whereas the park saved magnificent and irreplaceable trees for generations to come. "The redwoods," says Lucille Vinyard, the Sierra Club's energetic North Coast representative, "are the pride of the nation."

John Dewitt of the Save-the-Redwoods League, which has spent $75 million in 75 years to preserve ancient trees, is uncharacteristically emphatic about who is at fault in the argument. "Thousands of people are now being laid off in the computer industry in the Western United States because they just happened to have the misfortune of working on defense projects. Timber workers have had a habit of acting as crybabies for the last 100 years, anytime anything interfered with the simple task of cutting down trees. They lost jobs, but the taxpay-

Photographs by Ed Kashi

ers compensated them handsomely for it. People are tired of listening to their complaints."

To which Chris Rowney, resource manager for the timber company Louisiana-Pacific, replies, "The park cost 2,500 jobs. I know, the defense industry is laying off 70,000 workers. But for those 2,500 up here, and their families, the jobs were just as important as they are for defense workers. Losing them was just as painful."

At a time when much of the country is suffering lost jobs, layoffs and recession, and the spotted owl showdown has brought timbering in the Pacific Northwest almost to a standstill, it is difficult to picture how much a park dedication in 1968 may have contributed to a moribund local economy in 1993. At first glance, California's beautiful and lonely North Coast, with its thick forests, rich pastureland, hidden valleys and spectacular surf-pounded beaches scarcely looks like a hardship case. Yet both the economic statistics and the mood in Humboldt and Del Norte counties are grim.

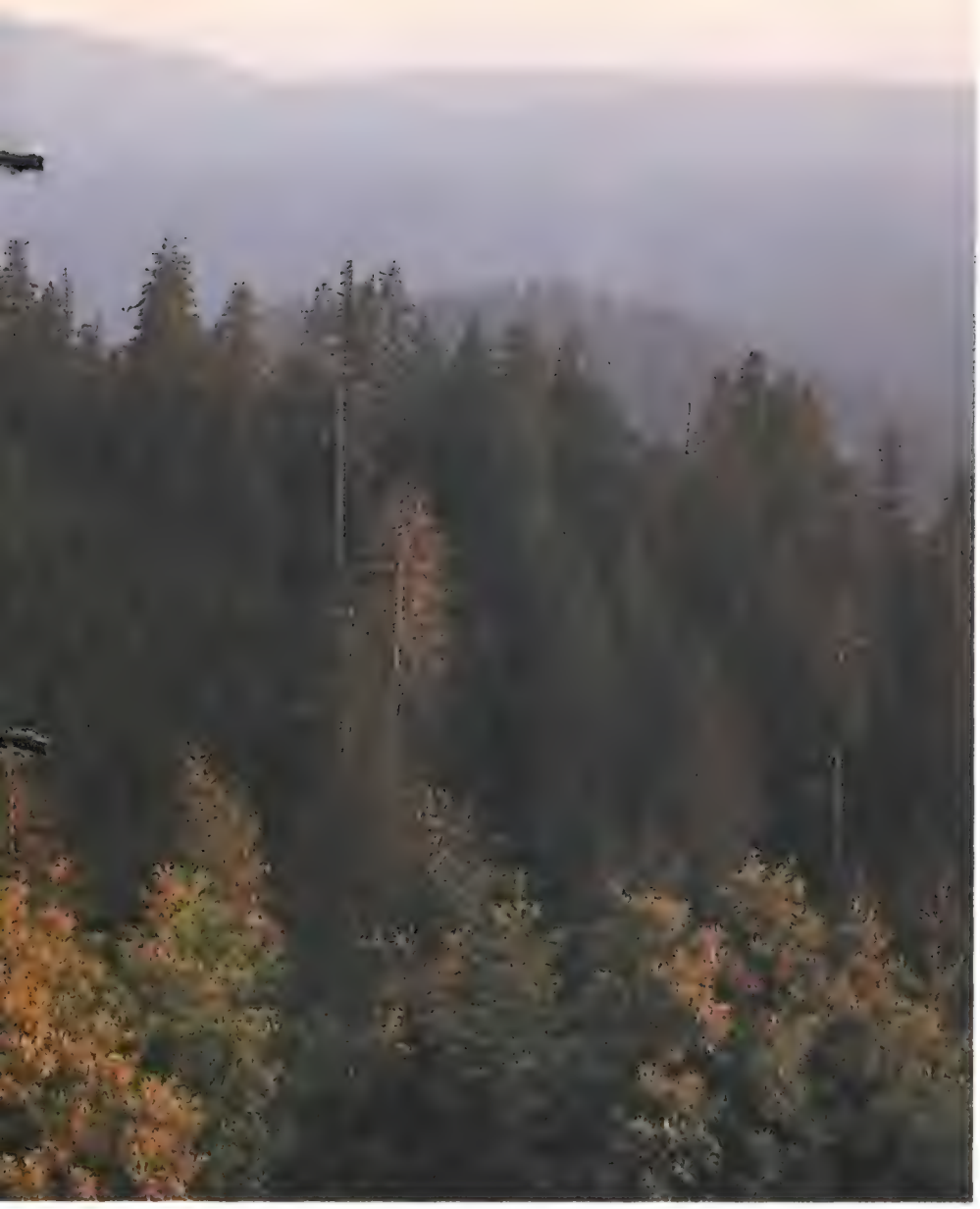
In Del Norte County, between 14 and 16 percent of the 9,600-person work force was unemployed in 1992. At $22,917, Del Norte's average household income stood 56th among 58 California counties. In adjoining Humboldt County, the fastest-growing source of local income comes from transfer payments, such as welfare and Social Security. Inflation-adjusted household income in 1991 was lower than five years before, and 25 percent lower than the California average.

Federal, state and local government payrolls–highlighted by the new Pelican Bay maximum-security prison in Del Norte County and Humboldt State University in Humboldt–have replaced forest products as the major employer. Del Norte, which once resounded to the whine of 52 sawmills, is down to its last mill, the Miller Redwood Company, which last fall reduced operations to a single shift and now employs fewer than 125 people. During the 1992-93 rainy season, one of two remaining pulp mills in Humboldt County shut down, throwing another 262 persons out of work.

A little logging town sure to profit

Drive along U.S. Highway 101 through the once thriving community of Orick and you see economic distress at its absolute worst. Set in a lush valley and surrounded by parklands, the little logging town was pictured by park proponents as a potential tourist mecca, sure to profit from hordes of visitors who would flock to the nearby park. "They said we were going to have so many people up here in ten years that this little town wouldn't be able to handle them," recalls Pat Dorsey, a former county supervisor and owner of the town's social center, the Lumberjack Lounge. "Well, the park hasn't brought in a penny of business." Meanwhile, all but one of the town's sawmills closed. Population dropped from 1,500 to

From an overlook in the park, visitors see young trees (foreground) in an area that has been restored.



Older, taller redwoods grow beyond. Centuries from now, visitors will not be able to tell what was cut.

Lucille Vinyard (above) has spent the past 30 years of her life fighting for a redwood park. Art Eck (opposite), deputy superintendent, oversees restoration of land that was cut, left looking like a battlefield.

about 600–"and most of them are on welfare," Dorsey says. No tourist facilities were opened. In a final twist of irony, the park's visitor center was constructed on the site of one of the closed mills.

From the Lumberjack Lounge's front door, Dorsey, now a grizzled 83, looks out on sagging, paint-peeling houses and shops peddling redwood sculpture. "People call it 'the chain-saw massacre,'" Dorsey says. Even the Western Ancient Forest Campaign's director Jim Owens acknowledges, "The town was just left to wither and die."

Yet continue a few miles north and you can appreciate all the glory and magnificence of the great trees for which the original battles were waged. Bald Hills Road leads past Orick's last sawmill, then climbs steeply uphill to Lady Bird Johnson Grove. An easy foot trail winds among giants hundreds of years old, many as tall as a 20-story building and bigger in diameter than an oversize banquet table. Sunlight filters softly through the lattice-work of boughs overhead, dappling the forest floor below. The atmosphere is hushed; evergreen needles muffle every footfall. The grove has all the feeling of a Gothic cathedral, with pillars soaring to a vaulted ceiling. You half expect to hear the Angelus.

Beyond the grove, you reach the park of tomorrow–the National Park Service's proud restoration project. Rehabilitation has removed 180 miles of logging roads and skid trails, planted 684,363 trees and returned 26,330 acres to their natural state. Removal of logging debris and sediment has brought fish back to the streams, and wildlife to the woods and grasslands.

"A magnificent stand of timber up there"

The results to date are impressive. John A. Campbell, CEO of Pacific Lumber and one of the environmentalists' favorite villains, says admiringly, "Eventually, that's going to be a magnificent stand of timber up there." The project attracts foresters and environmentalists from all over the world. The park has been designated a World Heritage Site and an International Biosphere Reserve.

One criticism is undisputed: Redwood National Park is almost invisible to visitors. Highway signs welcome you to "Redwood National and State Parks," but, says John Dewitt, "Redwood National Park is like a ring without the setting." The real "gems"–"the finest redwoods that ever existed," Dewitt calls them–are in Prairie Creek Redwoods, Del Norte Redwoods and Jedediah Smith Redwoods state parks. Technically the 27,000 acres of old-growth redwoods in these parks are authorized by Congress to be within the national park's 106,000-acre boundaries. But the state parks are separately managed and their independence is jealously guarded.

The state parks are also more easily accessible from Highway 101, so few sightseers venture beyond them, preferring to meander among the giant trees of the state

A former lumber company employee, Shirley Brown now runs her own trucking company and acts as an agent for others. Jay Barneburg (center) lost his logging job; now he's a guard at the new Pelican Bay prison.

park groves and to admire the herds of Roosevelt elk. In fact, the most popular visitor destinations in national park territory often aren't trees at all.

Assembling the park in two stages ten years apart prolonged the acrimony. The post-World War II building boom fueled a huge demand for redwood decks, paneling and picnic tables. By the 1960s, even locals became alarmed at the speed with which the ancient forests were disappearing. "Arcata Redwood was clear-cutting right down to Highway 101, near Prairie Creek [State Park]," recalls Lucille Vinyard, who promptly became an environmental activist. "It was hideous," she says.

In 1963, a National Geographic Society team discovered what it proclaimed the tallest tree in the world, measuring 367.8 feet, on timber-company land along Redwood Creek. The environmentalist movement, just beginning to gain strength, raised a cry to protect the tall tree and its neighboring giants, as well as additional old-growth redwoods, before it was too late.

Over the next five years, half a dozen proposals were made to carve a new national park out of old-growth redwood forests. Congress compromised on a park of 30,000 acres plus the state land and incorporating Tall Trees Grove. The final price paid to timber companies was $210 million. Some federal land was swapped for private old-growth timber.

Instead of dying, the controversy worsened. As timber companies continued to clearcut the hillsides above Tall Trees, environmentalists protested that erosion, landslides and logging debris were threatening Tall Trees and choking the streams, and lobbied Congress to vastly expand park borders.

The timber people erupted. Expansion, they argued, would remove some of the region's best timberland from production and take it off the tax rolls, with devastating effects on the timber industry, the local economy and local government–not to mention that it would throw large numbers of loggers out of work. In the end, however, a park expansion bill was passed by Congress and signed by President Jimmy Carter, adding another 48,000 acres to the park and establishing a 30,000-acre protection zone upstream from the big trees.

To placate the anguished locals, Congress sprinkled the bill with sweeteners. The U.S. Forest Service was directed to study increasing the timber harvest in nearby national forests to keep loggers at work. A revolving fund was set up to develop new businesses; federal funds underwrote a marina and an improved airport. The two counties were given compensating payments to make up for loss of taxes. A new freeway bypass was to be built around Prairie Creek Redwoods State Park, to divert heavy highway traffic from "Blood Alley" where rubbernecking tourists and speeding logging trucks shared a road through redwood groves, and thus create construction jobs. The Park Service was directed to give priority to displaced timber workers in hiring.

Californian Edwin J. Kiester jr. notes he often hugs the redwood growing in his backyard. His latest article in these pages was on apprentices.

Only a few locals were hired for the high-paying jobs. Once the repair shop supervisor at a mill,

Donovan Tolman now makes a living working as a custodian for eight Mormon churches in the area.

The centerpiece of the bill was the Redwood Employees Protection Program (REPP), set up to ease the financial pain for workers whose jobs were taken away. Under a complicated formula that kept lawyers busy for ten years, displaced workers could receive severance pay, weekly benefits about equal to their paychecks, a combination of both or a retirement program.

"Short-service" workers who had spent five years or less in the industry received only severance packages. That meant a onetime payment of $2,500 to $4,000. Workers with more seniority typically received weekly stipends of $225 to $400 for up to 72 months, or severance ranging between $32,000 and $45,000.

Undeniably, REPP poured money into the troubled economy–lots of money. At its height in 1980, REPP was paying out $250,000 a week in Humboldt County alone, making it by far the county's largest payroll. But even though young workers received nice nest eggs, and older ones a paycheck as large as if they were still working, many weren't happy about it–and they still aren't. If you want to hear lumberjack vocabulary at its sulfurous best, drop in at the Lumberjack Lounge and mention the words "park" or "REPP."

Charles Rankin, who worked for Arcata Redwood, was one of those immediately affected by the park expansion. Now a sprightly 75, Rankin was 59 then and had worked in the woods since he was 15. He had become a "faller," a chain-saw specialist who could expertly drop 300-foot trees precisely on a given spot with minimal damage to the valuable timber–one of the most skilled, dangerous and therefore highest-paid jobs in the industry. When the park expansion took Arcata's old-growth forests near Redwood Creek, Rankin found himself out of a job.

"Arcata offered to send me to their land up by Klamath," he says, mentioning a town some 60 miles north of his home in Eureka. "That would have meant two hours' drive each way, a lot of it over logging roads and through the tourist traffic in the state parks." Rankin took his benefit check until he was 62, then "severanced out." He has held a few part-time jobs since, but has resigned himself to puttering around the house and playing seven-handicap golf. "No reason I couldn't have worked to 65," he declares. "I would have had six more years' contributions to my pension and qualified for higher Social Security. The park took that away from me."

Another former logger, who spoke on condition of anonymity, still spits out the word "park" angrily. "I went down to the unemployment office and they suggested I should go into retraining," he says bitterly. "They said, take a two-year course in computers. And then what would I have done? Hell, there probably weren't ten computers in all of Humboldt County."

Donavan Tolman, an earnest, friendly man of 49 who was in his 30s and a repair shop supervisor at a saw mill when the bill passed Congress, works now as a custodian for eight Mormon churches. Still, he's happy to have found a job that would at least keep him on the North Coast. "I couldn't think of leaving here," he says. "My dad and his dad cut trees to bring the highway into

Mansion of timber baron William Carson has turned out to be more of an attraction than the park itself.

Crescent City. My roots are in this area. I'd rather starve than leave."

Although locals can fill you with stories about laid-off workers who squandered five-figure payoffs on speedboats or Mexican vacations, there were also success stories–those who used the money to carve out new lives. A beekeeper hobbyist, for instance, set up a business to provide pollination services to farmers and fruit growers. Shirley Brown is another success. Brown had worked for Simpson's personnel office computing laid-off employees' REPP eligibility, and then was laid off herself. She first took benefits "and watched my sons play basketball for a few months." Then, she won a hard-earned severance judgment. She invested in a truck and set up Shirley Brown Enterprises, negotiating trucking contracts for herself and 30-odd subhaulers. She now has five office employees.

John Grobey, professor of economics at Humboldt State, shakes his head as he says that his most dire prediction, that the park would destroy the county's economic base, came true. "The taxpayers spent a lot of money, but not much came of it. Certainly not much benefited the people here. They feel betrayed."

After nine years of litigation, the federal government paid out $688 million to three timber companies for land taken in the expansion. Interest and payments to small landowners drove the final purchase price above $1 billion–three times the original estimate. The total bill for the jobs compensation program was $120 million; $233 million was set aside for the restoration projects. That was in addition to the $306 million for the original park. Depending on whose figures you accept, Redwood National Park cost somewhere upwards of $1.4 billion.

Disappointments in retraining and tourism

As for benefits to the local economy, Grobey notes, only a few displaced loggers joined the Park Service payroll, which today amounts to just over 170 employees. The freeway bypass contract went to a San Diego firm, which imported its own work crews. The increased cut in the national forests never materialized, and in fact quotas have dropped steadily, from 144 million board feet in 1985 to less than 11 million in 1993.

The retraining program was disappointing, partly because there were so few jobs to train for. Four hundred workers signed up, but only 115 completed their programs. Many were Humboldt State dropouts who now saw an opportunity to complete their education at government expense. More often, says Jim Yarbrough, retired publisher of the *Triplicate* in Crescent City, younger workers took the cash and departed.

Tourism has been the biggest disappointment, however. In the rosy scenario of the 1970s, the timber industry cutbacks were only to be a period of adjustment usher-

The main street of Orick, once a thriving lumber town, has become a flea market for redwood novelties.

Hordes of visitors predicted by park planners never materialized, and the town's population has dropped.

ing in a new flood of tourism prosperity. Park advocates insisted that waves of tourists attracted to the newer, bigger park would more than compensate for the lost jobs in the woods and mills. Arthur D. Little, a management consulting firm, predicted a gain of 1.6 million visitors by 1983, and a total of 950,000 visitor-days above the numbers recorded by the state parks.

In fact, tourists have never arrived in anything like the promised numbers. Far from the projected million and a half tree lovers a year, tourist visits last year were estimated at 388,000–in a year when Yosemite, about 700 miles to the south, was overrun by well over three million.

The average visitor spends less than 50 minutes in the park. "What they get are park-and-pee visitors," sniffs John Miles of the Natural Resources Management Corporation (NRMC), an adviser on several early park proposals. "People stop, look up at the trees, go to the bathroom and drive on." Visitation is not helped by the park's lack of facilities. It has no tourist lodging and no drive-in campgrounds. Campsites can be reached only by strenuous backpacking.

Although Humboldt County tourism has gradually inched upward and is now the county's fifth-largest industry, the park is not the primary lure. The big tourist draw is Eureka's restored Old Town and the gingerbread mansions of the timber barons, souvenirs of the conservation-be-damned, cut-and-run logging days of a hundred years ago.

Tourism has created a few jobs, but even Jim Owens acknowledges, "It's hard to convince a man who made $15 or $20 an hour in a sawmill that he'll be better off working at Burger King." The average Humboldt County timber worker last year earned $21,300. The average motel employee received $11,500. Even then, most North Coast visitors are budget-minded, outdoors-loving families who camp in the state and county parks or head for the beaches.

Meanwhile, the area's protracted depression has brought another group of equally thrifty people. Attracted by the North Coast's spectacular scenery, rural lifestyle, clean air and–most of all–its rock-bottom housing prices, "equity immigrants" have sold their homes in Southern California's inflated real estate market and migrated north, where a four-bedroom house commanding an ocean view may cost less than $100,000. Some retirees have put down what *Triplicate* editor John Pritchett calls "shallow roots." They set up oceanfront residence in trailers and motor homes during the cool summers, then flee south again when the four-month rainy season drenches the area with its annual 72 inches of precipitation.

As if the downturn in the timber industry weren't enough, the two counties have been hurt by a decline in what was once the second-biggest money earner–fishing. "Commercial salmon is all but dead around here," John Pritchett says. Sport fishing, which used to attract hundreds of vacationing fishermen, has declined precipitously, too. Offshore salmon are in dramatically short supply, and severe restrictions have been placed on fish-

Along U.S. 101 inside the park, thrifty visitors camp on the beach in good weather and leave during rainy season. Retirees are buying houses in the area since prices are so low, but they do not spend much money.

ing. Environmentalists and commercial fishermen say the two problems are interrelated: fish can't get upstream to spawn because the streams are clogged with logging debris, so their numbers are dwindling.

The two counties have been further victimized by the go-go business atmosphere of the 1980s. All three of the major companies in the park expansion–Simpson Timber, Arcata Redwood (now part of Simpson) and Louisiana-Pacific–have gone through mergers, buyouts and privatizations that have resulted in consolidation and closing of mills. Louisiana-Pacific alone closed nine mills in five years (although officials say the closings were partly caused by logging restrictions).

Pacific Lumber, which was not affected either by the original park or the expansion, owns the largest stand of old-growth redwoods still in private hands. It was taken over in a hostile action by the corporate raider Charles Hurwitz and his Maxxam Corporation. The new owners speeded up cutting of old-growth, ostensibly to make up for undercutting in the past. They insisted they were benefiting the troubled economy, too, by providing more jobs. Environmentalists saw a different reason. They said cutting was increased to raise money to bail out Hurwitz's failed savings and loan institution.

Not much of the $889 million the first three companies received for their redwood holdings found its way into the local economy. A few smaller local mills were bought up, and Louisiana-Pacific opened one new (now closed) automated mill. Instead, investment went to other parts of the country and Mexico. Company spokespersons insist that between the park expansion reducing the redwood supply, and the spotted owl controversy shutting down the national forests, California was not the soundest place to invest. John Cumming, an attorney who handled many of the severance cases, and John Dewitt of the Save-the-Redwoods League, contend, however, that the companies pitted their workers against the environmentalists, then took the money and left the workers high and dry.

To local residents, their plight can be explained as a simple matter of numbers. The 150,000 people of Humboldt and Del Norte counties comprise less than one-half of 1 percent of California's 30 million population. "[Southern Californians] sit down there on their redwood decks sipping their Chardonnay and write us off as a bunch of ignorant hicks in plaid shirts and cork boots," one ex-logger said in the Lumberjack Lounge, while other patrons nodded in agreement.

"You have to understand," says John Dewitt "that this area was truly America's last frontier. Until the late '30s, they were almost completely cut off. There wasn't even a decent connecting highway. It was really the last hurrah of Western migration and exploitation of resources. They had to whack down forests to get enough sunshine to settle and survive, and they think anyone from the outside doesn't understand their hardships. There's a real us-versus-them mentality."

The area's isolation has also hampered attempts to re-

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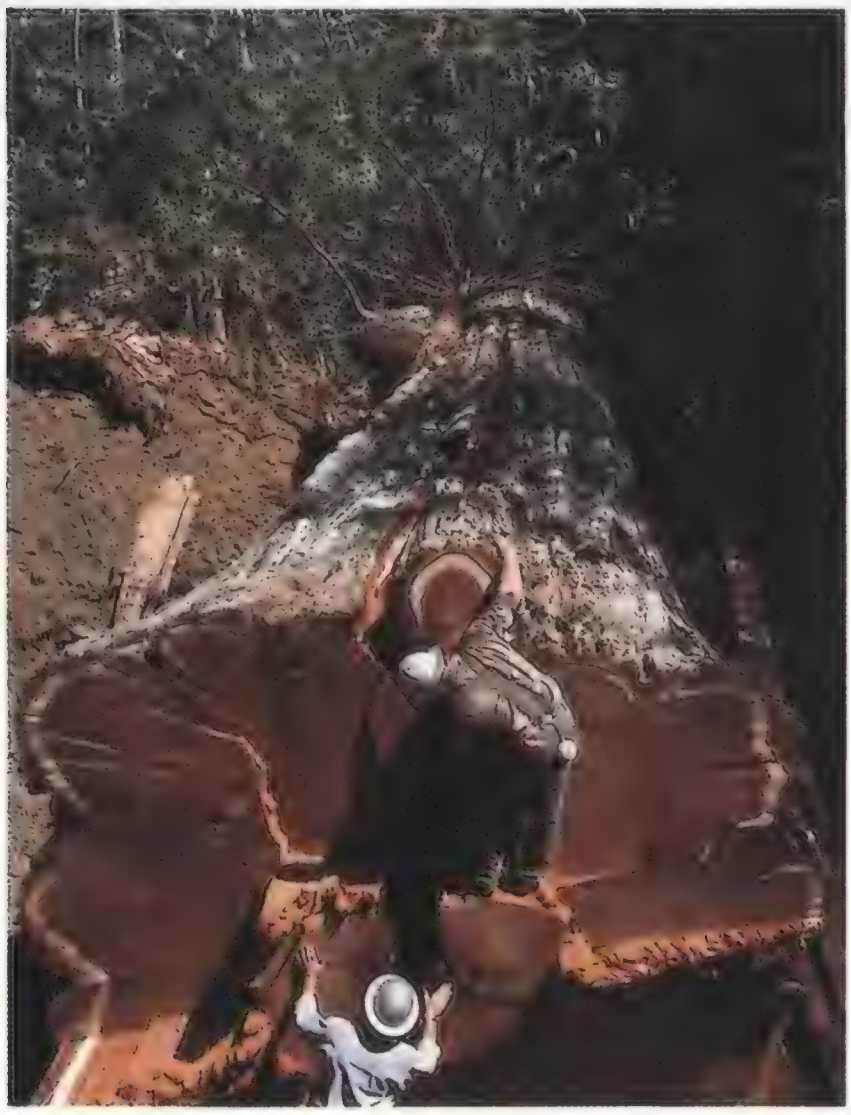
Chris Rowney, resource manager for Louisiana-Pacific, directs thinning of 70-year-old, second-growth trees.



Faller Steve Bachmann (on tree) and Richard Cox check growth rings on a newly felled 1,400-year-old redwood.

vive the economy by attracting new nontimber businesses. By the coastal highway, half of it frenetic two-lane, the nearest big cities of San Francisco and Portland are eight hours away. The route east, through the Coast Range to California's Central Valley, switches back 150 times in 50 miles. The only connecting railroad is subject to frequent washouts, and airline service is limited to 16 flights a day.

A few small mail-order businesses have been established, mostly employing part-time workers at minimum wage. The Bayshore Shopping Mall recently opened, providing more than 300 jobs. (But this gain was offset somewhat as Main Street stores closed their doors, unable to compete with the mall.) Worse, shopping-mall employees, too, are mostly low-paid part-timers. For a while, a growth industry was the cultivation of marijuana, before government raids burned off the fields.

"Go here . . . you'll see the real biggies"

The most notable bright spot in the dismal economic picture is the "super slammer" at Crescent City. Opened in 1989, the maximum-security Pelican Bay Prison houses 3,800 of California's most troublesome prisoners. Pelican Bay brought 1,170 high-paying jobs and a $48 million annual payroll to the Crescent City area. Although only a few of the $40,000 corrections officers' positions were filled by the locals, Crescent City picked up almost six additional service jobs for every ten prison employees.

Most of all, locals resent their image as rednecks who want to chop down every last tree and turn it into bookends. Loggers say they love the outdoors, and spend every possible minute among the trees fishing, hunting and camping; indeed, they say they know the forests better than anyone. When I told one logger that I was paying my first visit to the redwoods, he whipped out a map. "Go here, to Howland Hill Road," he said. "It's unpaved, and a lot of people miss it. But that's where you'll see the real biggies."

The $115 million highway bypass, which was finally opened in 1992, was an ecological disaster, locals contend. Sixteen old-growth redwoods–the very trees the highway was built to save–were cleared from the state park's right-of-way. Streams were rechanneled, disturbing fish migration, and winter rains washed out excavation and caused landslides.

Feelings about the park have been unusually intense because redwood-growing land, as opposed to that of Douglas fir and other species, is sharply limited. In the United States redwoods grow only in a very narrow 500-mile-long strip of coastal California and extreme southwestern Oregon, nurtured by heavy winter rains and by drip from the fogs that shroud the coast in summer.

Timber companies see no reason not to act. "I get very frustrated when people talk about forest preservation,"

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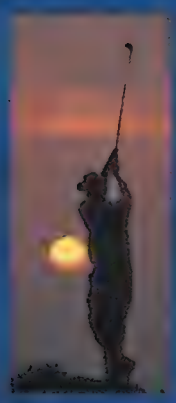

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Pat Dorsey, 83 (second from left), and wife Alice chat with Eddie Roane sr. and jr. at the Lumberjack Lounge.

Louisiana-Pacific's Chris Rowney says. "There is a perception of the forest as something different from what it really is. Trees are biological beings, like people. They have a definite life span. Like people, they reach a certain point in their life cycle when they've matured and aren't really growing anymore. A 300-year-old redwood is actually rotting more than it is putting on wood. People talk as if all the redwoods were 2,000 years old. A 700-year-old tree is a rarity. An old-growth forest is at best a static forest."

Gary Rynearson of the NRMC adds, "People want to lock up the forests and expect them to stay just as they are. But forests don't stay 'just as they are.' They are always changing. Trees blow down, they are struck by lightning, they topple over from old age. In 1991 the Dyersville Giant, one of the most famous trees up here, fell over. It took several other trees with it. Young shoots will sprout up where those fell, and we will have a forest mosaic–young trees and older trees together. That's the life cycle of the forest."

But others maintain that the area's future lies in preserving trees, not cutting them. Laminated-wood technology makes the monster redwood beams and girders of the past obsolete. Steel, plastics and composite materials are taking the place of wood. According to this point of view, trying to keep the timber industry afloat is like subsidizing the buggy whip industry. The big trees are the North Coast's greatest asset–but as an attraction. If they are cut, the area will have neither timber workers nor tourists.

"Our interest is in protecting the antiquity of these forests and their uniqueness as an object that came down from 160 million years of evolution to the present time," John Dewitt says. "It's an approach quite different from the economic approach. But we think beauty, esthetic value, uniqueness and environmental quality are important."

For all the bitter words, there are a few encouraging signs that the old animosities may be subsiding and the sides coming together. The Save-the-Redwoods League is attempting to serve as a bridge between the groups. "Of course, the definition of a bridge is something everybody walks on," Dewitt says. "But I think the idea is getting across that the objective is to solve a problem, not win a debate."

Some loggers have also come around. Earl Roberts is a former faller and logging contractor who now works for the Park Service. "A lot of my friends are bitter," Roberts says. "I tell 'em, the world changes and we have to change with it. The timber industry is dying. There aren't enough trees to be cutting at the rate we've been cutting. We've been using our resources much too fast. Anybody who's been around timber knows better."

The park's current superintendent, Bill Ehorn, is given high marks by the local residents. Ehorn, who directed the establishment of California's Channel Islands National Park as a popular tourist destination, hopes he can similarly build up Redwood Park's appeal. He has made a point of cultivating local groups, leading tours into the park to show off the restoration and discussing future plans every chance he gets.

Recently, Ehorn distributed a solicitation to investors for a 75- to 100-bed lodge and conference center. "One of the problems here is that the park has no center," he says. "People never feel they have arrived." Having a comfortable place within walking distance of the trees would also attract groups and persuade visitors to lengthen their stays. He has been looking at sites near Orick, within view of elk herds and only a short stroll from redwood groves.

Ehorn explains: "I tell people here frankly, 'Look, the park's been here 25 years and it isn't going to go away. The timber industry will never be the same again, fishing is hurting, what is there for the future except tourism? The sooner we work together, the more we market together, the better off everyone will be. If we put the past behind us and cooperate, we can make Redwood Park a win-win situation.'"

Driving home past the decaying houses of Orick, and commiserating with the former loggers at the Lumberjack Lounge, however, it is not easy to see a rosy future. One can only conclude that, for the unhappy neighbors of Redwood National Park, a winning situation cannot arrive one moment too soon.

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LIKE A ROCK

By Henry Adams

Rubens was artist, scholar, diplomat–and a lover of life

An exhibit at Boston's Museum of Fine Arts shows that this Flemish genius truly lived in the right place at the right time

Of all the great European Old Masters, Rubens has always been the most difficult and puzzling for Americans. Thomas Eakins, the famed American portraitist, once wrote that Rubens' paintings should be burned. Somewhat less viciously, Ernest Hemingway made fun of his fleshy nudes–which have given rise to the adjective "Rubenesque"–in a passage of his novel *A Farewell to Arms.* Here, two lovers attempt to cross from Italy into Switzerland in the guise of connoisseurs of art. While preparing for their assumed role, they engage in the following exchange:

"'Do you know anything about art?'

"'Rubens,' said Catherine.

"'Large and fat,' I said."

Part of the difficulty, it is clear, lies in the American temperament. Historically, we have preferred restraint to exuberance, been uncomfortable with nudes, and admired women who are skinny and twiglike rather than abundant and mature. Moreover, we Americans like art to express private, intensely personal messages, albeit sometimes strange ones, whereas Rubens orchestrated grand public statements, supervised a large workshop and absorbed the efforts of teams of helpers into his own expression. In short, Rubens can appear too excessive, too boisterous and too commercial.

Prado Museum, Madrid

At the age of 53, a newly married Rubens celebrated by painting the joyous, nine-foot-wide *Garden of Love.*

Antwerp Cathedral

The Descent from the Cross (1611-14), with an earlier triptych, *The Raising of the Cross*, marks Rubens' move into mature style. Key figures were influenced by the *Laocoön*, a Hellenistic sculpture depicting suffering.

In addition, real barriers of culture and background block appreciation. Rubens filled his paintings with references to classical literature and Catholic dogma. Most modern viewers don't understand these references, let alone the complex ways in which Rubens employed symbolism and allegory, creating a fascinating tension between the realism and individuality of his figures and the abstract qualities they personify. Given the complexity and elaborate artifice of Rubens' artistic language, some wonder if he was truly sincere.

Considering these barriers to understanding, it isn't surprising that Rubens' paintings have been little seen in this country. Nevertheless, it is surprising that "The Age of Rubens," which just opened in Boston, is the first international loan exhibition in the United States to survey 17th-century Flemish painting. Organized by Peter Sutton, the curator of European paintings at the Museum of Fine Arts in Boston, and sponsored by the National Endowment for the Humanities, the National Endowment for the Arts and the Vira I. Heinz Endowment, the show will remain there until January 2, 1994, and then travel to the Toledo Museum of Art in Ohio (February 2-April 24, 1994).

More than 30 works by Rubens himself form the core of the show. Some of them–including his later masterpiece *The Garden of Love* (pp. 58-59), sent by the Prado in Madrid–are in the United States for the first time. The exhibition also contains masterworks by more than 40 artists who surrounded or collaborated with him, such as Anthony van Dyck, Jacob Jordaens and Jan Bruegel the Elder.

How will the public respond to the exhibition? My guess is that, in America, Rubens will probably remain somewhat difficult. But even those who dislike his painting may find themselves fascinated by his life. Successful in everything he attempted, Rubens was an outstanding linguist, an astute businessman, a happy family man, one of the greatest collectors in history, a renowned scholar, an esteemed courtier who was showered with knighthoods and titles by the rulers of three countries, and a skillful diplomat who labored tirelessly in the cause of peace. Neither pushy nor overly ambitious, he inspired little jealousy. All who knew him were impressed with his grace.

Rubens' father, Jan Rubens, an Antwerp lawyer and adviser to princes, shared his son's charm but not his

Henry Adams is a curator at the Nelson-Atkins Museum in Kansas City. He wrote on the pictorial history of the Plains Indians in November 1992.

sound judgment. Serving in Siegen, Germany, as councillor to the wife of the Prince of Orange, Jan got her pregnant and was thrown in prison. In Germany the punishment for adultery was death, but his wife, Maria, came to his defense. Through her efforts, Jan's life was spared, and while under a kind of house arrest, the reunited couple conceived two children–Philip, born in 1573, who became a distinguished classicist, and Peter Paul, born in 1577.

When Jan Rubens died ten years later, the family moved back to Antwerp, where Peter Paul attended a Latin school, served briefly as a court page and studied art. The main glimpse we get of him is from schoolmate Balthasar Moretus, who later became head of a famous printing firm in Antwerp. In a letter to Philip Rubens, Moretus wrote, "I loved this young man who had the kindest and most perfect character."

Venice and a noble introduction

In 1600, at the age of 22, Rubens headed for Italy to complete his training in art. He went first to Venice to study the work of Titian, Tintoretto and Veronese. According to his nephew, a chance meeting established the course of Rubens' future. Staying at an inn, he met a noble from the court of the Duke of Mantua. Impressed by Rubens and his copies of Italian pictures, the noble introduced him to the duke, who hired him immediately.

He could have found no better spot for an artistic education; the Duke of Mantua had one of the greatest art collections in Europe. Rubens served him not only as painter, but as courtier, diplomat and art adviser. He traveled extensively. Sent to Florence to attend a wedding, he made studies of reliefs by Michelangelo, often drawing at night by candlelight when his work for the duke was over; and in Milan he copied Leonardo Da Vinci. Rubens did the same in Rome, in Spain–everywhere that he went.

During the final part of his stay in Italy, from 1605 to 1608, the duke allowed him to live in Rome with his brother Philip, who was studying classical literature and serving as librarian to a wealthy cardinal. Together the two brothers roamed the city, examining classical antiquities. With the help of influential friends in the Vatican, Rubens obtained a major commission, to paint a large altarpiece of Saint Gregory and three other saints for the church of Santa Maria in Vallicellà–an altarpiece he had to completely redesign on slate because the glare in the church made the first version difficult to see.

By the time Rubens returned to Antwerp in 1608, his knowledge of Italian painting and classical antiquities was unsurpassed. Reunited with Philip, who had returned home before him, he now had time to consider his options. Could he support himself in Antwerp or should he return to Italy? His decision to stay was fixed when Archduke Albert, in an extraordinary gesture, gave Rubens the title of court painter, with an annual pension but no responsibilities. Shortly after receiving this honor, Rubens cemented his decision to settle down by marrying Isabella Brant, the daughter of one of the four Secretaries of the City. The happy marriage inspired one of his most delightful paintings, in which he showed himself and his wife seated in a honeysuckle bower, holding hands (p. 64).

The situation was ideal in Antwerp for an ambitious young painter. In the late 16th century, due both to Protestant iconoclasm and to Spanish violence, many of the altarpieces in the main churches of the city had been destroyed. Moreover, the rulers of the Spanish Netherlands, which in Rubens' time included Flanders, Brabant and Luxembourg, were committed to the Catholic religion and Catholic imagery as a badge of national identity. They wanted to distinguish the country from the United Provinces of the Netherlands, the Protestant country to the north. Even when altarpieces already existed, patrons were eager to commission new paintings whose imagery was more explicitly and emphatically Catholic,

Museum of Fine Arts, Boston

Hercules as Heroic Virtue Overcoming Discord (1632) is a sketch for ceiling of Whitehall Palace in London.

and which appealed more strongly to the emotions of the spectator.

In stepping into this situation, Rubens had two advantages over other Flemish painters. One was his artistic skill; next to his work, that of other Flemish painters looked stiff and old-fashioned. The other was his social contacts and his ability to use them. His brother Philip, now one of the Secretaries of the City, belonged to the ruling elite. Almost instantly, Rubens won the energetic support of Antwerp's leading art patrons.

The works that Rubens painted in Italy, while beautiful, are often a little stiff. They do not flow together gracefully, and each figure occupies his or her own psychological space, without relationship to others. Within a few years after his return to Antwerp, however, Rubens had learned how to group a large number of figures together into a flowing rhythm, and how to engage each figure psychologically in the main action of the picture. A major turning point in his development was the large altarpiece *The Raising of the Cross* (1610-11), a 15-foot-by-11-foot masterpiece that contains more than a dozen muscular figures. The following year he produced an even more powerful painting, *The Descent from the Cross*, in which the figures meld together seamlessly.

These paintings overwhelm the spectator with their size, their magnificent handling of textures and varying qualities of light, and their theatrical storytelling. Rubens created a new sense of movement in deep space. The light does not fall evenly but in irregular patterns, with dramatic contrasts of light and dark. Everything has been caught up in action, change and movement; beside a Rubens, the work of earlier painters seems static.

In the ten years following his return to Antwerp, Rubens produced about 60 large altarpieces, and by the end of that time he was receiving commissions from Catholic rulers all over Europe. He capped off the decade with a tour de force of decoration–39 large ceiling paintings and three altarpieces for the Jesuit church in Antwerp. Not content with painting alone, he also designed ornaments, sculpture and decoration for the facade of the church. (Sadly, much of this work was destroyed by fire in 1718.)

Rubens also branched out into other subjects: scenes of the classical world, such as a series of 12 oil sketches for tapestries based on the life of the Roman emperor Constantine; hunting scenes–often filled with lions, tigers, hippopotamuses, crocodiles and other exotic animals–which appealed to aristocrats all over Europe; and erotic paintings of nudes, depicting stories from classical mythology, which appealed to a special kind of wealthy patron, like the profligate Duke of Buckingham. Supremely confident, Rubens matter-of-factly explained his gusto for huge enterprises when he wrote, "I am, by natural instinct, better fitted to execute very large works than small curiosities. Everyone according to his gifts; my talent is such that no undertaking, however vast in size or diversified in subject, has ever surpassed my courage."

Despite Rubens' great ability, the scale of his production could not have been achieved without assistance. Soon after his arrival in Antwerp, he assembled a large team of artists to help him realize his grandiose projects. In the past, Flemish artists had often collaborated with each other, working in "double harness," for example, with one painter executing figures and the other, landscape. Rubens expanded this process. Often he would make the initial design and have assistants enlarge it to full scale. He would then go over the painting, making significant changes in poses and facial expressions to bring it up to his standard.

Grand spectacles for public consumption

Today this setup seems anti-artistic to those who are accustomed to the idea of the solitary artist in a garret, struggling to record his or her own vision. Rubens' approach was more similar to the modern movie industry, in which dozens, if not hundreds, of people work together under one director to create a spectacle for public consumption. Personal expression matters less than the scale and quality of the product.

Rubens was in his element in the bustling studio, amazing visitors by his ability to perform many tasks at once. Thus, when a young Danish doctor, Otto Sperling, stopped in, he found Rubens painting while having a passage from Tacitus read aloud to him, as he also dictated a letter. He kept on with all these activities as he talked with Sperling.

With his sparkling eyes and laughing air, Rubens drew people to him. Joachim von Sandrart, who served as his guide during a trip to Holland in 1627, expressed this best. "Quick and industrious in his work, he was courteous and kind to everybody," wrote Sandrart, "and since

National Gallery of Art

Oil sketch of *The Meeting of Abraham and Melchizedek,* done in about 1626, was a *modello* for a tapestry series in which Old Testament stories were tied to New Testament scenes. Here, Abraham's reception by the priest-king of Jerusalem is seen to prefigure the Eucharist.

Stiftung Schlösser und Gärten, Potsdam Sanssouci Bildergalerie

For *The Crowning of Diana*, a six-foot-wide oil on canvas, Rubens collaborated with Frans Snyders, an Antwerp colleague who specialized in the painting of animals. Goddess of the hunt and the moon, Diana exudes the strong but sensual image of woman as Rubens saw her.

Alte Pinakothek, Munich

Oval composition of *Rubens and Isabella Brant under a Honeysuckle Bower* conveys the new marriage's solidity.

all found him pleasant, he was very popular." Rubens returned the feelings: "I regard the whole world as my country," he once wrote, "and I believe that I should be very welcome everywhere."

Rubens served as his own business manager and advertising agent. He was a hard bargainer who refused to bend under pressure. In one of his largest transactions, Rubens traded six of his own paintings for 134 classical marbles that belonged to the English diplomat Sir Dudley Carleton. In a letter to Carleton, Rubens made it sound as though he had done the collector a great favor, declaring that he had given sufficient paintings "to adorn an entire palace" in exchange for "marbles to furnish one room."

It wasn't long before Rubens prospered. Sir Thomas Roe, an Englishman who knew Rubens in Antwerp, noted enviously, "He had grown so rich by his profession that he appeared everywhere, not like a painter but a great cavalier with a very stately train of servants, horses, coaches, liveries, and so forth." He lived in a large house, which he remodeled at great expense to serve as home, workshop, library and salesroom, and as advertisement for his classical learning and good taste. Using the palaces he had seen in Genoa as a model, he left the street facade unadorned, and decorated the courtyard with classical columns, sculpture and paintings that re-created famous masterpieces of antiquity. At various times he sold off portions of his collection for large gain; after he sold some "pictures, antique marbles, agates and other jewels" to the Duke of Buckingham he was able to buy seven large houses with the resulting cash. In the garden he installed an Italian fountain, a small replica of a Roman triumphal arch, garden statues, expensive imported flowers and orange trees in tubs. His paintings show iridescent peacocks roaming the grounds.

Rubens had the first important collection of Italian painting in northern Europe (he was particularly fond of the Venetian school); its crowning glory: 11 paintings by Titian, including the famous late self-portrait now in the Prado. One of the most notable destinations in Antwerp, his estate was visited by a number of his royal patrons, such as Sigismund, Prince of Poland, the Infanta Isabella, the Marquis Spinola and Marie de' Medici.

Rubens' personal success, however, was not shared by his city. While he prospered, Antwerp declined. Before the religious wars of the late 16th century, it had been the busiest seaport and most prosperous city in Northern Europe. But Antwerp decayed after the 1587 partition between the Spanish Netherlands and the United Provinces, since the latter closed off the entrance to the Scheldt River, blocking all maritime trade into the city. A truce signed just as Rubens returned revived the city only moderately.

English visitors to Antwerp in the 17th century commented on the emptiness of the streets and the dearth of goods being sold; and despite his own good fortune, Rubens was deeply pained by the sad state of his countrymen. "This city," he wrote in 1627, "languishes like a consumptive body, declining little by little. Every day sees a decrease in the number of inhabitants, for these unhappy people have no means of supporting themselves either by industrial skill or trade."

"I am a peace-loving man"

Two specific misfortunes encouraged Rubens to turn his attention from art to political affairs. One was the death in 1621 of Archduke Albert, ruler of the Spanish Netherlands, which left his widow, Archduchess Isabella, in need of a councillor and adviser. As it happened, the truce between Spain and the United Provinces came to an end in the same year as the archduke's death, raising the threat that war would break out between the two countries. Rubens, who had always been friendly with the couple, stepped in both to help Isabella and to work for peace. "I am a peace-loving man," Rubens wrote to one of his closest friends. "I am sorry that all kings and princes are not of this humor."

"The first time I gave her a diamond ring she cried and called her mother."

I'll always remember that face. The smile bordering on a tear. Silence as powerful as music. Eyes as lively as the diamond I nervously slipped on her finger. And now that we have come so far together, perhaps now is the moment to celebrate that love, once again, with a diamond as exceptional as our love.

Exceptional woman. Exceptional diamond.

An exceptional diamond of two carats, or more, is so rare that fewer than one percent of women will ever own one. If you are considering an important diamond gift for your wife, like this ring featuring a brilliantly cut 2.55-carat center stone, simply call for your guide to a diamond's quality and value, as well as the name of your local expert diamond jeweler. 1-800-858-7110.

De Beers

A diamond is forever.

A second misfortune five years later was the death of his beloved wife, Isabella Brant. For Rubens she had been an "excellent companion" who was "all goodness and honesty." Despondent over the loss, Rubens found the sight of familiar places painful to him and sought release in travel.

Rubens had begun his diplomatic activities in 1621. At first his role was rather casual, but as his ability became apparent, he was entrusted with ever greater duties. In 1625 Archduchess Isabella began sending Rubens on secret missions. In 1628 she sent him to Spain on the pretext that he had been asked to paint a portrait of her nephew, King Philip IV. Amazingly, Rubens won the trust and admiration both of the pleasure-loving king and of his chief minister, the Count-Duke of Olivares, a somber personality who liked to lie in a coffin.

The king changed his tune

A year before, when Philip had first heard that his aunt was employing Rubens on diplomatic missions, he had sent her a vigorous note of protest. "I am displeased at your mixing up a painter in affairs of such importance," he wrote. "Our prestige must necessarily be lessened if we make so mean a person the representative with whom foreign envoys are to discuss affairs of such great importance." But after dealing with Rubens in person, Philip changed his tune. When an envoy was needed for a secret mission to London, he wrote to Archduchess Isabella recommending Rubens in the strongest terms: "Rubens is highly regarded at the court of England, and very capable of negotiating all sorts of affairs. . . . In such matters one needs a minister of proven intelligence with whom one is satisfied."

The following spring Rubens sailed for England to negotiate a truce between Spain and England, and to arrange for the two countries to exchange ambassadors. The mission could not have been more difficult because the two countries had been intermittently at war for about 50 years–since the days of the Armada. The English court was a hornet's nest of rival cliques. One faction wanted to join with France in a war against Spain; another wanted war with France and peace with Spain; another wanted peace with all. The French ambassador wanted to sabotage any friendship between England and the Spanish Netherlands; the Dutch ambassador was even more violently hostile; the Venetian ambassador did his best to stir up trouble.

Sir Francis Cottington, the British chancellor of the exchequer, noted admiringly of Rubens that he was "not only very clever and adroit in negotiating matters, but also knows how to win the esteem of everyone and especially the king." After months of intrigues, delays and uncertainties, Rubens finally achieved his goal, arranging for a truce between England and Spain and for ambassadors to be exchanged. On the eve of his departure, in March 1630, Charles I summoned Rubens to Whitehall and knighted him.

Museum of Fine Arts, Boston

Among the copies Rubens made of earlier artists' work was one of Jan Vermeyen's *Portrait of Mulay Ahmad* .

Over the next few years Rubens was showered with further honors and titles, but he was growing tired of diplomacy and court intrigues. "Best of all, I should like to go home and remain there all my life," he wrote a friend from England. Finally, in 1635, with considerable effort, he persuaded the archduchess to allow him to abandon politics altogether. "I made the decision to force myself to cut this golden knot of ambition, in order to recover my liberty," he wrote. He begged her to give him, "as the sole reward for so many efforts, exemption from such assignments and permission to serve her in my own home. This favor I obtained with more difficulty than any other she ever granted me."

Rubens had another reason to shake himself loose from politics. In December 1630, a few months after his return from his mission in England, Rubens married his second wife. His friends had urged him to wed a court lady and improve his social status, but Rubens pursued a different course, marrying Hélène Fourment, the

Dewar's

100TH PROFILE:

DIANE PETERSON

HOME:
Los Angeles, CA

AGE:
39.

PROFESSION:
TV and Movie Stunt Woman.

MOST FEARLESS ACT:
"Discussing politics at a dinner party in California."

BOOK SHE'S BEEN MEANING TO GET TO:
"Dante's Inferno."

PROUDEST MOMENT:
"Either jumping from a moving train or balancing my checkbook."

ON DRINKING DEWAR'S:
"Unlike most of what I do, this is one thing I can definitely advise: try this at home."

Dewar's · White Label · Schieffelin & Somerset Co., NY, NY · Blended Scotch Whiskey · 40% Alc./Vol.

Both: Kunsthistorisches Museum, Vienna

Ecstatic with his devoted young second wife, Hélène Fourment, Rubens painted her as Venus in *The Fur.*

daughter of a prosperous Antwerp tapestry merchant. "I chose one who would not blush to see me take my brushes in hand," he wrote.

Rubens argued that his choice of wife had been motivated by prudence, but nonetheless it must have raised eyebrows, since Rubens was 53 and his bride was 16. He seems to have been deeply in love with her. During the ten years of their marriage, despite his failing health, Hélène bore him five children–the last one born eight months after his death.

He painted Hélène in every conceivable guise and stage of dress or undress: as a grand lady about to step into her carriage, as a penitent saint, as Hagar expelled into the wilderness, as Venus being judged by Paris, as a farm girl being kissed by a lecherous peasant and as a nymph being abducted by a satyr. Rubens had always excelled at painting flesh, but in these late paintings skin takes on an almost spiritual luminosity and transparency. Perhaps one reason for this was that Rubens' right hand was growing crippled from gout, making every touch of the brush a painful one and encouraging him to paint with ever greater delicacy and thinness.

Five years after his marriage, Rubens purchased a country estate, the Castle of Steen, acquiring the appellation "Lord of Steen," which became the favorite of his titles and the one that is featured most prominently on his tombstone. The place contained a manor house surrounded by a moat, a drawbridge, a crenellated defense tower, barns, outbuildings, a pond, a working farm and picturesque groves of trees. He loved its flat fields, quiet ponds and bramble patches, celebrating its beauties in a number of passionate landscapes.

Although Rubens could easily have sold these magnificent landscapes as well as the sensual portraits of his wife, he kept many of them for himself, hanging them in his gallery in Antwerp alongside his Raphael and his Titians, thus becoming the first known painter in history to seriously collect his own work.

These late nudes and landscapes exude pure pleasure, but in fact Rubens was often in excruciating pain due to his gout, which finally ended his life on May 30, 1640. In death as in life, Rubens proved well organized. His will was detailed and specific, even including a gift of a copy of one of his paintings to a man who had once helped him buy a horse.

Rubens lived in a tragic time of religious intolerance and economic hardship and of wars that devastated Europe. But he managed to serve humankind while still finding inner happiness through retreat into the pleasures of family life and the practice of his art. He truly lived his life according to a passage from Juvenal's *Satires* that he inscribed at the entrance to his studio: "One must pray for a sane spirit in a healthy body, for a courageous soul, which is not afraid of death, which is free of wrath and desires nothing." Rubens seems to have achieved his goal–and more besides. As his first biographer, a 17th-century French critic, wrote, "Rubens led the happiest life in the world."

Rubens in 1639, just after painting *The Fur*; he saw himself as "one who lives by the work of his hands."

UFO
FEAR
LOUISVILLE
BOY, 8, RUN DOWN BY
CITY'S WORST DRIVER
ALIEN CAPTURED
BY U.S.
AGENTS!

By Sue Hubbell

Rare glimpse inside tabloid world reveals editor is mad dog!

Just kidding. Actually, those supermarket weeklies are serious business, and they make big money keeping ancient folk themes alive

Managing editor Sal Ivone reacts with mock horror at the prospect of having his own brain eaten by aliens.

I am standing in one of the most unusual places I have ever been. It is an alcove in the big newsroom of the *National Enquirer* in Lantana, Florida. The newsroom is deep inside a one-story, pebbled-concrete building with huge windows that make it look like an overgrown elementary school. The building is hidden by trees and lush tropical plants, surrounded by a parking lot. The crowded alcove where I am standing is jammed with the desks, computers and files of the 19 staffers who turn out the *National Enquirer*'s sibling publication, the *Weekly World News* (*WWN*), the black-and-white supermarket tabloid that has taken newspapering to its most absurd, post-postmodern limits. It is the paper that screams from the rack at the checkout: "WORLD WAR 2 BOMBER FOUND ON MOON!" "BIGFOOT CAPTURED!" "FARMER SHOOTS 23 POUND GRASSHOPPER!"

Eddie Clontz, its editor, sandy-haired, smiley, bouncy, has invited me to spend the day in this alcove. His desk is heaped with green folders that contain clips from hundreds of newspapers around the world, letters from readers, transcripts of telephone calls that are the kernels of *WWN* stories. The folders will be passed around to the reporters, who will then embellish them and translate them into tabloidese. On top of the stack of folders is a rubber dog mask.

Wearing his bullterrier mask, *Weekly World News* editor Eddie Clontz terrorizes his staff with a water blaster.

"Eddie," I say, "I can't help but notice you have a rubber dog mask on your desk."

"Yeah. I wear it from time to time, but this is my real reporter-waker-upper," he says gleefully as he opens his desk drawer and pulls out the biggest squirt gun I've ever seen. He aims it at Susan Jimison, alumna of the University of Pennsylvania, specialist on Elvis sightings and people who have been held captive in alien spaceships. She is staring meditatively out the window. "Susan!" he calls to her.

She looks up and groans, "Oh, no! Not again!" but Jack Alexander, Indiana University graduate, formerly bureau chief of the *St. Petersburg Times* and city editor of the *St. Petersburg Evening Independent*, chivalrously holds up his word-processor keyboard to block the shot. He has recently helped break the "story of the century"–that five U.S. Senators are space aliens.

Most of Eddie's staffers are alumni of Harvard or Bryn Mawr or other good schools. They include a veteran of the *New York Times*, a former Capitol Hill reporter for Newhouse News Service, the retired editor of juvenile nonfiction for J. B. Lippincott. Salaries for established reporters are $75,000 and more. A recent hire, with no

Photographs by Brad Trent

tabloid experience, has started at $53,000, and editors make salaries well into the comfortable six figures. In an unguarded moment, Eddie, himself a tenth-grade dropout and former wire editor at the *St. Petersburg Times* and the *Evening Independent*, once confessed, "We have to pay them a lot because we are, in effect, asking them to end their careers. . . . We're the French Foreign Legion of journalism."

It wasn't until after the death in 1988 of Generoso Paul Pope jr., the father of the supermarket tabloid, that visitors were allowed into the building. I feel privileged, at the heart of mystery. I turn to Sal Ivone, M.A., University of Chicago, former corporate speechwriter, managing editor of *WWN*. He is a thin, intense, dark-haired, mournful-eyed straight man to Eddie, the ebullient comedian. I ask him if I can meet the alien who, during the autumn of 1992, amused us at the supermarket checkout line by favoring first George Bush, switching to Ross Perot and finally settling on Bill Clinton. "Yeah, we might be able to arrange it," he says thoughtfully.

Astronaut Senator is really an alien

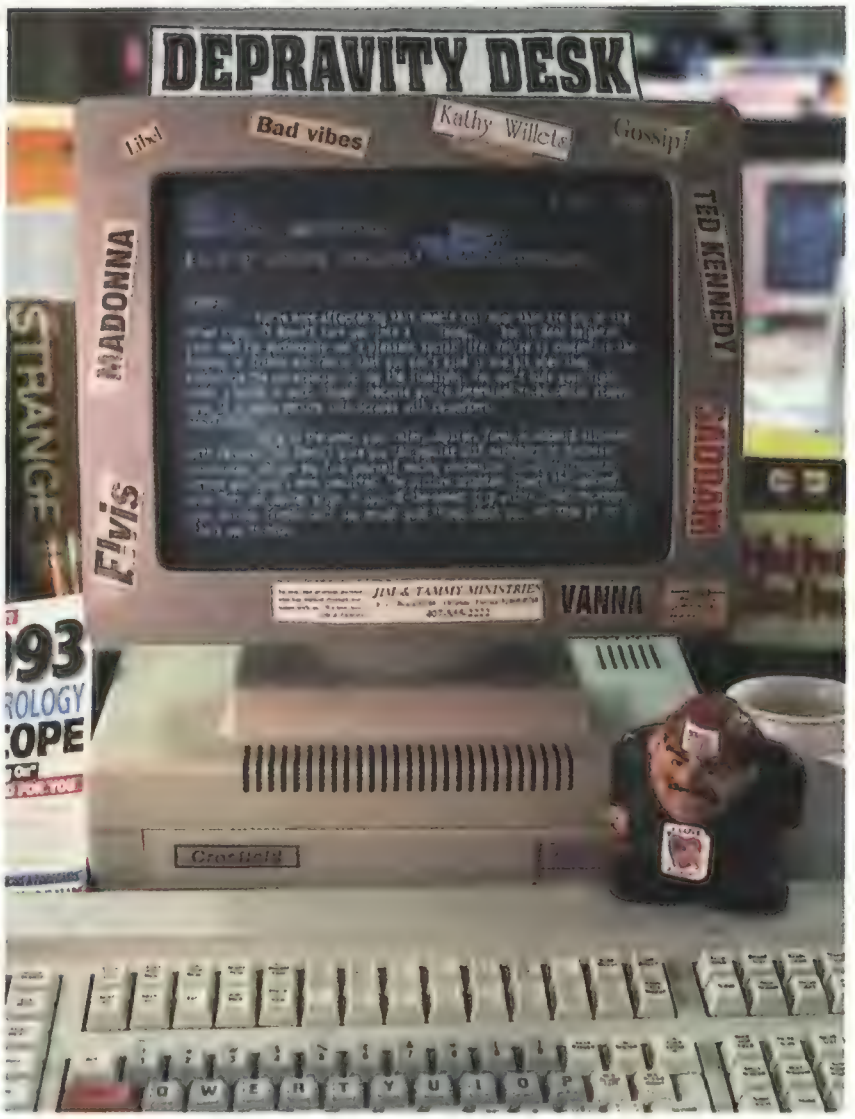
I then ask Eddie to tell me about the story of the century. "Well, we'd run the story about the alien endorsing the candidates," Eddie explains, "and we got a call from a reader and he says, 'Those guys are not the only aliens around. I can't give you my name and don't try to trace this call, but John Glenn's a space alien . . . and . . . and . . . there are MORE!' I said, 'What the hell! Call 'em up. Maybe the whole damn Senate's space aliens.'"

Reporters started calling Senate offices. Many aides responded with incredulity; some hung up. But some didn't. Four Senators in addition to Glenn–Orrin Hatch, Nancy Kassebaum, Sam Nunn and Alan Simpson–came under suspicion; two aides had wit enough to admit the shocking truth. Said Glenn's spokesman, "OK . . . OK . . . you found us out, but remember this–mankind is not alone." Nunn's staffer responded, "I'm almost positive there are more," corroboration enough for a *WWN* story. It was published complete with pictures of all five Senators and the Capitol. Nunn himself wrote to Eddie: "While I have not been asked to appear on *Deep Space Nine*, your story about me being a space alien . . . generate[d] a significant number of inquiries to my press office. I, of course, answered all the queries telepathically."

What is this? Fiendishly clever political satire? Sal denies it, but there is a certain brightness in his eyes when I mention that such a piece reminds me of the satires I have heard on National Public Radio. Sal is, he confesses, a fan of *All Things Considered*.

"When am I going to meet the alien?" I nag him.

"Y'know we don't let tourists in here unless it's real safe. We've got the landing pad for him out there in the parking lot. Hmmm. Looks like it's pretty full of cars just now," Sal answers, peering out of the window through the tropical foliage.



A horoscope fills the screen of an editor's computer (above) at the *National Examiner*. Tabloids aim at the common man, but shirts worn by *Weekly World News* baseball team (opposite) reveal highbrow alma maters.

Do readers believe what they read in the supermarket tabloids? Attitude surveys, for obvious reasons, are hard to conduct, but 20 percent of the respondents to a 1984 Roper poll said the supermarket tabloids were "accurate," and 49 percent said they were not. Lest journalists from the establishment press feel smug, I hasten to point out that a slightly different but comparable Roper poll conducted the same year about the credibility of the media in general found that 24 percent of the respondents trusted newspapers and only 7 percent of them trusted magazines.

Eddie likes to say that he has 200 million readers every week. That is an estimate of how many people pass through the supermarkets and see his cover. Other, calmer sources claim that the combined readership of the six major national supermarket tabloids, with their assorted emphases on celebrity gossip, health, horoscopes and the bizarre, is 50 million a week, based on sales, plus the numbers of readers to whom purchased

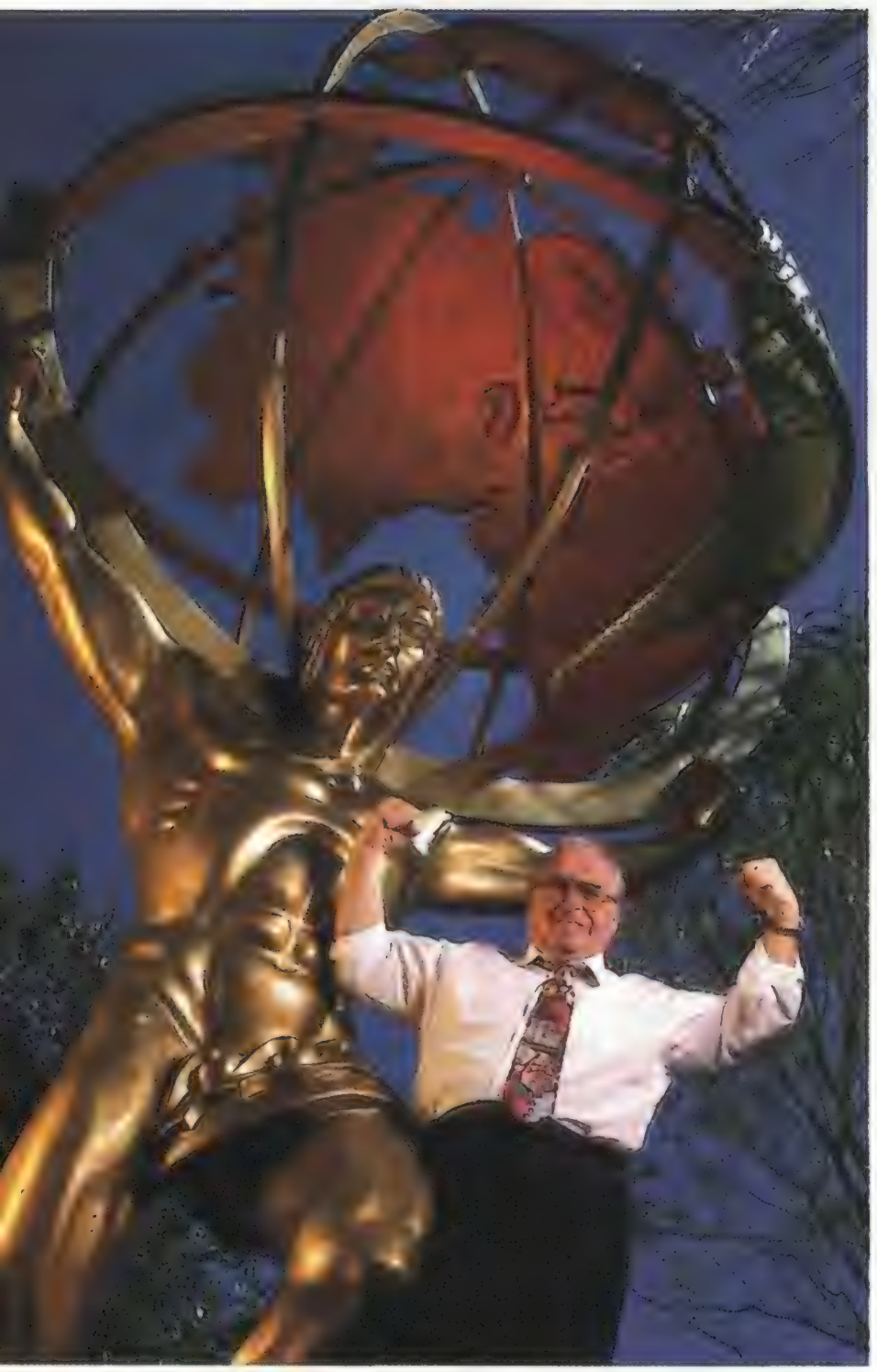
copies are passed on. But both of these estimates are "tabloid truth"–numbers with a mere kernel of reality. Figures from the magazine industry's Audit Bureau of Circulation (ABC) for U.S. sales over the last half of 1991 (the most recent comparative statistics available) total a little under 11 million for all six, arranged in declining order of sales: *National Enquirer, Star, Globe, National Examiner, Weekly World News, Sun.* If each issue sold is passed on to a couple of other people, total readership may be somewhere between 25 million to 30 million each week.

The usual assumption is that the typical tabloid reader is a middle-aged woman who watches a lot of daytime television. However, no in-depth surveys have been done, and Sal and Eddie tell me that *WWN* is beginning to develop a cult readership among intellectuals. "We've got some college fan clubs," Eddie says as Sal drapes me in *WWN* T-shirts featuring the front page of their biggest seller of all time: "ELVIS IS ALIVE!"

The Globe publications, *Globe, National Examiner* and *Sun,* have always trailed the others. "Pope led the way," Phil Bunton, editorial director of Globe Communications, told me. "We've just followed his lead." Globe Communications' offices are showier than the *Enquirer*'s. They are in nearby Boca Raton, nestled into a corporate park; behind the obligatory jungle of plants, the stagy entrance is set off by a waterfall and an outlandish bronze health-club Atlas holding a huge see-through globe of the world.

I talked with Phil in his office at the *Globe* the day before I went to Lantana. In former days, staffers of the competing tabloids drifted from one to the other, ratcheting up their salaries with each move and changing jerseys in the cricket matches the two companies played against each other. American journalists are beginning to replace the rogue British writers who have long dominated the tabloid staffs, and now bowling is the competitive sport of choice. Phil, a portly, pinkly affable Scotsman with sandy hair, is a former Fleet Street journalist who began his newspapering life as a farm editor in the

Sue Hubbell last wrote in SMITHSONIAN *about killer bees. Her latest book,* Broadsides From the Other Orders *(Random House), was published this past summer.*



Editor Phil Bunton flexes muscles next to a statue of Atlas at Globe Communications' Florida headquarters.

north of Scotland. He came to the United States in 1973 to work on the *Star*, started by Rupert Murdoch. The *Globe*, the eldest of the publications in the Canada-based corporation, was spun out of a Montreal entertainment magazine in the 1960s.

I asked Phil how it was that British reporters and editors have become so successful in American journalism, taking over not only tabloids but some of our most upscale magazines as well. "I think Brits have a talent that has died out in this country, a talent to sensationalize, to give the audience what it wants," he said. "We give them scandal and gossip. I think most American journalists take themselves far too seriously and regard themselves as being crusaders, as if they are really improving the world. We know it's a business."

But he has also been happy to have the protection of the First Amendment. In recent years, no other *Globe* story has attracted more attention than the one that divulged the name of the woman in the William Kennedy Smith rape case. Once she was identified in the *Globe*, the sober media used her name, too. "We got hauled into court," Phil said. "Florida has a rape victim shield law which we argued was unconstitutional. The local court supported us. It was a First Amendment case."

Other recent court cases have made tabloid editors more cautious, however; all of them have attorneys who vet every issue. The multimillion-dollar suits for slander and defamation by such celebrities as Frank Sinatra, Cary Grant and Carol Burnett are often settled out of court or, in the end, reduced on appeal. In the famous Carol Burnett case against the *National Enquirer*, the star's $1.6 million judgment was eventually reduced to $200,000 on appeal to the U.S. Supreme Court. And ordinary people, with private lives to defend, fare no better. Nellie Mitchell, a 96-year-old Arkansas woman who was falsely identified by the *Sun* as a 101-year-old pregnant mail carrier, won a judgment of $1.5 million in state court. But the federal appeals judge has ordered the sum reduced, and the case, Phil told me, is still in process.

"Scandals don't sell many issues"

When the tabloids want a story or a picture, they are willing to pay for it. The *Star* paid $150,000 to Gennifer Flowers for her claim that she had had an affair with Bill Clinton, a story that swirled around the candidate when he was in the New Hampshire primary. "Maybe 20 percent of our stories in the *Globe* are purchased," Phil told me, "but scandals don't actually sell many issues."

Iain Calder, another Scotsman, known to employees as the "Ice Pick," is editor of the *National Enquirer* and president of National Enquirer Inc. He would not grant me an interview. "I do hope you don't think I'm being rude," Calder had purred over the telephone, "but I wouldn't like to be put in the tabloid context." He went

Bunton doesn't need the strength of Atlas–just a catchy cover–to get shoppers to pick up the *Globe*.

Here he critiques a layout in paper's art department, where much thought and effort go into tabloid design.

on to explain: "Well, of course, we are a tabloid, but I like to compare us to *People* magazine. Do you know last week we ran the same picture of Princess Di that *People* did? Not just like it, but the very same."

The *National Enquirer*, in its logo, states that it has "the largest circulation of any paper in America." It is true that readers of tabloids commonly refer to them as "papers," but the ABC considers all six supermarket tabloids, including the *National Enquirer*, to be magazines, and the California court, ruling in the Carol Burnett case, agreed. Checking ABC figures, the *National Enquirer* is 14th in U.S. sales, ahead of the 18th-placed *People*, to which Iain Calder would prefer to be compared.

The circulation of the *National Enquirer* and the other supermarket tabloids has been in a steady decline over the past several years. Staffers attribute this to a variety of causes, including the recession, competition from lottery tickets at the checkout stand, tabloid television and the increasingly juicy content of the mainstream press. But the tabloids are also victims of the success of their own distribution systems.

In founder Pope's day, the sales force he employed to put the *Enquirer* into supermarkets handled his tabloids exclusively. After his death, his publications and sales organization, Distribution Services Inc. (DSI), was purchased for $412 million by a New Yorker, Peter Callahan. Callahan was then head of a small company, Macfadden Holdings, containing the remnants of the publishing empire of Bernarr Macfadden, the physical culturist who brought sensational journalism to the masses. In 1990 Callahan also bought the *Star*, for $400 million, and the following year the Enquirer/Star Group was reorganized as a public stock company within Callahan's purview. DSI now distributes lots of other magazines to the supermarkets, not just the tabloids. Globe Communications has a similar distribution setup, and so these days all the tabloids must compete with many other colorful and titillating magazines at the checkout counter.

Pope, the man who brought tabloids into the supermarket, was born in New York City in 1927. He graduated from the Massachusetts Institute of Technology at the age of 19. In 1952, after a few desultory years working in the family sand-and-concrete business, at his father's newspaper *Il Progresso* and even for a short stint at the CIA, he borrowed enough money to buy the ailing *New York Enquirer*, a weekly tabloid newspaper with a circulation of only 17,000. He filled the pages of the *Enquirer* with sex, gore, violence and big headlines ("PASSION PILLS FAN RAPE WAVE") and circulation began to increase. In 1957 he renamed it the *National Enquirer* and began to dream of a readership of 20 million.

By the late 1960s, Pope was looking for sales outlets

that would give his paper more potential buyers. He reasoned that nearly everyone spends some time in the supermarket. The *Enquirer* would be a lucrative item in grocery stores, where the profit margin is measured in a penny or two. Today, with a cover price of 99 cents, each copy of the *Enquirer* sold makes the supermarket 21 cents, according to a DSI spokeswoman. Supermarket executives were dubious, however, because of the *Enquirer*'s sleazy reputation. Pope cleaned up the content, brought in more celebrity gossip and introduced health features. By 1971, the year he moved the *National Enquirer* to Lantana, not far from the house he had purchased, he had already used some highly placed influence to help bring supermarket executives around.

In 1983 Pope told an interviewer, "We got Melvin Laird, who was the Secretary of Defense at the time, to personally take supermarket executives on a tour of the White House where they spent half an hour with President Nixon. The guys who owned Winn-Dixie, which just wouldn't let us in nohow, walked out of that meeting and said, 'We still don't like the *Enquirer* but we've got to put it in now.'"

Today, Laird, who remembers the meeting a little differently, says that Nixon appeared quite accidentally, but he admits that Pope got one of his aides to arrange a Pentagon briefing for supermarket executives during a convention they were holding in Washington. Laird, who spoke at the briefing, had then invited them on the White House tour.

Tabloids strategically placed at checkout snare readers with celebrity gossip and unexplained alien phenomena.

Early in the 1970s, the *National Enquirer* followed *Women's Day* into the supermarkets, elbowing aside candy bars and razor blades at the checkout stand, where customers waiting in line would have to take notice. In its best years, a decade straddling the 1970s and '80s, the *Enquirer* could sell 5 million copies a week, a figure short of Pope's dream of 20 million but still enough to make him a wealthy man. When he died five years ago, his personal fortune was estimated to be $150 million.

Pope, who had loved his work, read every word in his tabloids and worked in the office seven days a week, sometimes in bathing suit and carpet slippers, often with opera playing as background music, watching, perhaps, for the three topics reporters said they were forbidden to write about: the CIA, the Mafia and Sophia Loren. He had been advised that he could have made even more money had he expanded and diversified. To such advice he replied, according to Eddie Clontz, "Yeah, but you can only eat so many hamburgers."

WWN, which Eddie considers to be the "last great stand for the old-time tabloid," was founded in 1979 by Pope almost as an afterthought. The growing circulation of the *Enquirer* during the 1970s had been so tempting to Rupert Murdoch, the Australian press baron, that he tried to buy the tabloid. Failing that, he began a new American tabloid on the British model, the *Star*, which he produced in color. To meet the competition, Pope was forced to switch to color printing too. Then, to use his idle black-and-white presses, he began *WWN*, filling it with leftover bits from the *National Enquirer*.

Phil Bunton was the first *WWN* editor, but the gossip and celebrity content didn't work in black-and-white any longer, and circulation reflected that. Eddie was hired in 1981. He became managing editor in 1982, editor in 1989. He studied the successful tabloids of the past and carefully crafted *WWN* on their example, looking to the sensational publications of William Randolph Hearst, Joseph Pulitzer, Bernarr Macfadden and others as models.

Centuries-old ghosts haunt papers

In a sense, tabloids–that is, news in condensed form–have been with us, in oral tradition, ever since people began entertaining one another with ballads and popular stories. A 17th-century ballad told of a phantom drummer who threw children out of bed. The November 10, 1992, *Sun* features a story with pictures that begins: "A young family fled their home in horror after a child-hating spirit repeatedly terrorized their little boys!" Printing presses, once developed, were often used for single newssheets, broadsides, to satisfy a universal human desire to read about sensational events. An early broadside tells the story of one Mary Dudson, who swallowed a small snake that grew inside her and finally killed her. In 1924 the New York *World* published a story

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Bernarr Macfadden, physical culturist and tabloid publisher, shows off his impressive physique at age 55.

about a girl who died and was found to be "harboring" a living snake that she had swallowed as an egg. *WWN* of November 10, 1992: "X-RAY SHOWS LIVE SNAKE TRAPPED IN MAN'S STOMACH."

S. Elizabeth Bird, a cultural anthropologist at the University of Minnesota, became fascinated with this repetition of folk stories, and that led her to write a book, *For Enquiring Minds*, from which the above 17th-century examples are drawn. She studied tabloids as folklore and notes their preoccupation with eternal themes: the hero who didn't die (Elvis, JFK and Jimmy Hoffa are our current favorites); children raised by animals (remember Romulus and Remus?); ghosts (haunted toasters are big right now); monsters (Bigfoot has replaced dragons); flying saucers (the psychologist Carl Jung once traced back through medieval paintings the image of round, healing objects coming from the skies in times of social disruption); fairy stories about princes and princesses (today's definition of royalty has been expanded to include Oprah Winfrey and Elizabeth Taylor).

The penny press in America was as popular as it was in England. In 1845 the weekly national *Police Gazette*, which Simon Bessie in his classic *Jazz Journalism* terms "a trade organ of Fast Life," showed publishers what a market there was for lurid stories printed in tiny columns. By the turn of the century, Americans had given the world a new term, "yellow journalism," to identify the reckless content of newspapers such as Hearst's *New York Journal*, which used the first comic strip, *The Yellow Kid*, the star of which was dressed in his namesake color. But, in the end, the British have the credit for pulling all the strands together and inventing the modern tabloid.

Alfred Harmsworth, later Lord Northcliffe, saw the potential in 1894 of a small-format newspaper with brief, colorful stories and lots of pictures, ones that appealed to women as well as men. By 1909 his *London Daily Mail* and *Daily Mirror* were selling a million copies a day. Harmsworth eyed the American market and told Joseph Patterson of the *Chicago Tribune*, "If the rest of you don't see the light soon, I'll start one [a U.S. tabloid] myself." So, in 1919, Patterson issued America's first true tabloid newspaper, the *Illustrated Daily News*, 15 inches by 11 inches, with a front page dominated by a photograph of the Prince of Wales, soon to visit Newport, Rhode Island, a back page featuring bathing beauties, and the pages in between stuffed with picture stories about "personalities" in the news. Imitators were immediate and many. Space here permits singling out only one, but it is one that influenced Generoso Pope and Eddie Clontz.

Bernarr Macfadden, who died in 1955 at the age of 87, is remembered today as a body builder, a health food advocate and the inventor of Cosmotarianism, the "Happiness Religion." But Macfadden also had a strong populist belief in the common man and a shrewd business sense; combined, these led him to establish such magazines as *True Story*, which endured to become the nub of Peter Callahan's Macfadden Holdings. In Macfadden's day, *True Story* editors were taxi drivers and dime-store clerks who were ordered not to edit anything out of the confessions sent in by "ordinary" people. In 1924 he began the *New York Evening Graphic*, a tabloid, on the same principle, enlisting, whenever possible, participants to write the news and advising his editors, "Don't stick with the bare skeleton of facts."

The king of England scrubbing his back

Macfadden developed the composograph, a photograph that was enhanced, altered, sometimes posed. With a composograph, for instance, the *Graphic* was able to show the king of England scrubbing his back with a brush inside his own bathroom (tabloid pursuit of British royalty began long before Fergie and Di). In 1927 the *Graphic* brought both embellishment and the composograph into the famous divorce case of a teenage wife, "Peaches" Heenan, and her wealthy, publicity-hun-

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gry husband, "Daddy" Browning. I'll let Simon Bessie tell the story: "Peaches' 'private diary' was serialized and countless intimate pictures were printed. Among the numerous composographs were several of the *Graphic*'s outstanding achievements in this line. Daddy and Peaches were shown playing 'doggies' in their boudoir under the headline WOOF, WOOF, I'M A GOOF. Daddy was persuaded to adopt an 'African honking gander' as a pet and was pictured leading the bizarre animal about New York. The picture was captioned HONK, HONK, IT'S THE BONK."

In the end, the Depression and the change in the spirit of America probably killed the *Graphic*, which ceased in 1932. But Eddie also points out that "sensational publications usually had a tremendous, meteoric rise and then a very precipitous fall." He regards it as his challenge to "take a paper in these times and sustain it as a sensational publication. Gossip, myth, mysteries. Those are all a part and so is making it a forum for readers." Hearst, says Eddie admiringly, "was a master of that."

Today's popular folklore in the tabloids is available everywhere–drugstores, supermarkets, newsstands, train stations–but only for one week. Then it is gone. The publishers' own files are not public, and few libraries, aside from the Library of Congress, the Research Libraries of the New York Public Library and the Popular Culture Library in Bowling Green, Ohio, receive them. Those collections are incomplete. This means future folklorists may not be able to read that "ALIENS CONSIDER EARTH THE GHETTO OF THE UNIVERSE," may never know that a "BIBLE SCHOLAR SAYS THAT HEAVEN IS FULL" or that a "RARE MAN-EATING KANGAROO KILLS 27 IN AUSTRALIA!"

On the day I visit the *National Enquirer* offices, Eddie invites me to read his mail as he opens it. *WWN* has recently run a story about the fact, new to many of us, that there are baby ghosts. Eddie tells me that the mail has been heavy from people who want to adopt them. And sure enough, letter after letter that we rip open is from lonely, childless couples or single women who lay out their qualifications to adopt a ghost baby. Eddie looks at me, seems touched, a trifle saddened. "We've gotten a thousand letters. Biggest response I've had in a year."

I look around the newsroom at reporters industriously tapping their word-processor keys, peering at computer screens. I feel disoriented. I don't know what all of this means. And as for that alien, it never shows up. Terrible disappointment.

Skeptical clerk files tabloids at Library of Congress, one of relatively few libraries to give them shelf space.

"Form ever
follows function."

–Louis Henri Sullivan (1896)

By maximizing

the ratio of room given

to passengers to room

Function

given to machine

a whole new category of

vehicle is created.

Form

Later, this same concept

leads to "cab forward."

The windshield is moved

forward

Function

and radically canted

to provide increased

visibility and decreased

aerodynamic drag.

Form
CHRYSLER

The wheels are moved

toward the corners to

provide a significant increase

in interior volume.

Function

This also provides a wider

track for more stable handling.

Rear doors become wider

for easier entry and exit.

Form

Presenting one of the most eloquent expressions ever of form following function. The Chrysler New Yorker.

Buy a new car that looks like this and everywhere you go heads will swivel. Which will probably make you feel very, very good. For about one week. After that, you hope and pray a car's beauty is more than sheet metal deep. Fortunately this car's fluid lines are not the result of some styling gimmick;

† Based on '93 EPA Measurements. * Always Wear Your Seat Belt.

they're the result of a totally new automotive architecture called "cab forward." The New Yorker seats six, and is roomier than the Cadillac Seville, Acura Legend and the Infiniti Q45.† It has a longer wheelbase than a Lincoln Continental, so you get a smooth, comfortable ride. It has a wider track than the Lexus LS 400, so the car

plants itself around curves. It has four-wheel independent suspension, four-wheel disc ABS, and driver and front passenger air bags.* All standard. In fact, the whole premise behind its design was functional: to combine the comfort of a luxury car with the handling of a sports sedan. Can we help it if it also turned out beautiful?

Presenting the Chrysler LHS.
Its function? To perform.

If what you're looking for is a sedate way to get from one appointment to the next, there are many luxury cars you can choose from. However, if what you want is a car that can make that trip exhilarating, take a look at the Chrysler LHS. It's one luxury car that assumes you enjoy the act of driving. To that end, it has a 24-valve,

*Always Wear Your Seat Belt.

214-horsepower overhead cam engine with more torque than a Nissan 300 ZX, and "it answers to the helm with an effortless precision that would do BMW proud," says *Car and Driver*. The Chrysler LHS caters to your sense of refinement with anatomically designed bucket seats trimmed in glove leather, an 11-speaker Infinity Spatial

Imaging Sound System and automatic temperature control. And it appeals to your common sense with four-wheel disc anti-lock brakes and driver and front passenger air bags.* Quite simply, the Chrysler LHS was designed to put you back in touch with one of the chief joys of owning a car. In case you've forgotten, it's called driving.

The Chrysler Concorde. A function and a form automotive writers are still writing about.

The reviews for the Chrysler Concorde continue to be glowing. One writer has gone so far as to call it "a watershed event in auto industry history." All of which has been flattering, of course. But even more gratifying is the fact that real people have been buying this car, and *their* reviews are starting to come in. According to

†C.A.R., Inc. Early Quality Study 1993 MY. Based on combined overall opinion owner votes of Excellent and Very Good. *Always Wear Your Seat Belt.

one research study, among the 129 new car models sold last year, the Chrysler Concorde ranked in the top ten in owner satisfaction.† Along with Mercedes, Acura and Lexus. There are a number of reasons for this. The Concorde's roominess and comfort, its superb handling, its long list of standard features, including

driver and front passenger air bags.* And its price is set at a level car-buying mortals can actually afford. All of which adds up to a strong argument for test-driving the Chrysler Concorde. You'll not only see why last year it was *Automobile Magazine's* "Car of the Year." You'll see why this year, it should be *your* car of the year.

The Chrysler Town & Country. (Form following function led to a whole new form of transportation.)

When we introduced the first minivan back in 1984, it literally transformed the way families traveled. And since inventing it, we've continued to improve it. Some examples: we were the first with a minivan air bag. The first to offer an integrated child safety seat. And now we're the first to give you driver and front passenger air

*Always Wear Your Seat Belt. †Excludes sunscreen glass.

bags* and dynamic side impact protection. Which means, for 1994, our minivans are the only ones to meet all 1998 passenger car safety standards.† All this functionality is raised to luxurious new levels in the Chrysler Town & Country. It offers quad seating for seven, an Infinity Sound System, four-wheel anti-lock brakes and a 3.8-liter

high torque V-6. Luxury appointments like a CD player, leather-trimmed seats are also available. The Chrysler Town & Country shows what can happen when a company believes in continuous improvement. We just can't seem to leave a good idea alone. Aren't you glad?

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With automania in full swing in the 1920s and '30s, gas stations also did a booming business. At what looks like a grand opening, this one pulls in customers with new clockface pumps, two brands of gas and lots of attendants.

This new book will pump you up

If you ask people what best symbolizes 20th-century America, dollars to donuts most of them will say the automobile. Since the early 1900s, when grocers installed pumps out front with the words "filling station" hand-lettered on them, we've been on one long roll–and gas stations have, too. In his new picture book *Pump and Circumstance: The Glory Days of the Gas Station*, John Margolies brings to life an era when all service was full service. By the 1920s there were plenty of customers; the trick was to get them to come to you and not to the guy at the other end of town. And so, a new station might be a red-tiled pagoda in Milwaukee or a miniature Greek Revival temple in Pittsburgh. Margolies' book has photographs of these and dozens more, as well as old postcards, maps, signs–all the scraps of our collective car-culture memory.

Promotional efforts were shameless–and lots of fun. Some became famous, like the singing Merry Texaco Men on the Milton Berle TV show. Others, like the "free marriage with five gallons of gas" offer in Florida (p. 99) or the 50-foot-high tower of empty oil cans in Casselton, North Dakota (which still stands), won local fame.

If you remember things like where to look for the *Q* in the backseat alphabet game (Quaker State, of course) or you have a weakness for flying red horses or you still get a kick out of watching someone squeegee your car windshield with style, turn the page and fill 'er up.

Patrons of Bob's Airmail Service (at left) on Wilshire Boulevard in Los Angeles could walk through the plane while their car was gassed up. In the 1950s and '60s, Union Oil Sparkle Corps (below) made sure that the restrooms in the chain were up to par.

In a 1961 promotion at his Miami, Florida, service station (above), owner Wally Smith, a notary public, looks on as Richard Alkine kisses Pearl Mann, the happy bride (at right).

Elegant gas pump with brushed-aluminum casing was designed by architect Elliot Noyes as part of Mobil Oil's effort to update its corporate image in the 1960s.

Beautiful women were a frequent motif in ad efforts, as on the Native State decal above and the road map at left. Folding the unwieldy maps was a problem; about a hundred folding schemes were patented.

During the 1920s and '30s, some of the most colorful characters and scenic sites were at the gas stations themselves. Above: a Nevada roadside fixture, "Dad Lee" serviced gas tanks with his Tokheim visible pump. Stunts like the "tower of tires" in California (at left) pulled in ogling customers by the carload.

A bygone era: in the Depression, stations shaped like tank cars suggested cut-rate, "tank car to you" prices. A relic of the times is Bill's in Creston, Iowa (right). The grand opening of a West Coast Standard station in the late '40s (below), complete with klieg lights, looks more like a movie set.

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By Joseph S. Levine

Dusk and dawn are rush hours on the coral reef

When the sun goes down, the daytime crowd starts to head for cover, and a whole new cast of characters takes their place

Twilight descends on the reef along the Gulf of Aqaba. Underwater shadows lengthen, and the bright blue of day fades to steel gray. For a time, brown surgeonfish continue browsing the algae on rubble and beach rock as they have throughout the day. But suddenly, as if responding to a telepathic order, they stop eating and head toward the reef's ocean side. There they gather and fall into single file, spacing themselves half a yard apart. The resulting train heads off purposefully along the reef, merging with similar processions on the way, until as many as a thousand fish are parading together.

These trains converge on a coral knoll that juts out toward deeper water. There the animals break formation and mill about. Within minutes, however, hundreds fall into line once again and head off unerringly toward open water. After traveling some distance, the lines again break up as the fish gather in clusters.

As many as 2,000 fish congregate in groups that mill about, forming a tightly packed, dome-shaped swarm about ten yards in diameter. The dome rises slowly into the water column, its center stretching upward farther than its edges. Just as the central fish ascend to about three yards from the bottom, they dash downward, once again forming a low, dense school. This pulsating pattern repeats for about half an hour. At the peak of each pulse, the top of the dome stretches a little farther toward the water's surface.

Then, as the light dims noticeably, a dozen individuals gather more closely together within the pulsing mass. They separate slightly from the group as the dome reaches its peak. Finally, as though released from a tautly strung bow, first one group, then two groups, then five, fling themselves upward toward the surface, pivot sharply and dash back down into the milling swarm. At the apex of each group's ascent, its members leave something behind–small clouds of transparent eggs and white sperm that float slowly away. This group-spawning behavior, unknown to those who frequent the reef only by day, is but one of the sights common at dusk.

Twilight brings change to all animals. Insects court among blades of grass, songbirds roost in tree limbs, rodents scuttle through underbrush, and owls stir in the trunks of dead trees. They do so because what daylight exposes, darkness conceals; and what shadows allow, sunshine forbids. Over evolutionary time, nearly all living things have reacted to those limits and possibilities by "learning" that certain things are best done by day and others by night.

So the simple fact that coral reef animals hunt, sleep, court and breed at different times of day is hardly a revelation. In fact, coral fishes divide up the hours among themselves in much the same way as their cousins in other aquatic habitats. Somewhere between a half and two-thirds of reef species work the day shift; roughly half that many–between a quarter and a third–sleep (or rest) by day and prowl by night; the remaining 10 percent prefer the twilight periods of dusk and dawn. (A few are active day and night.)

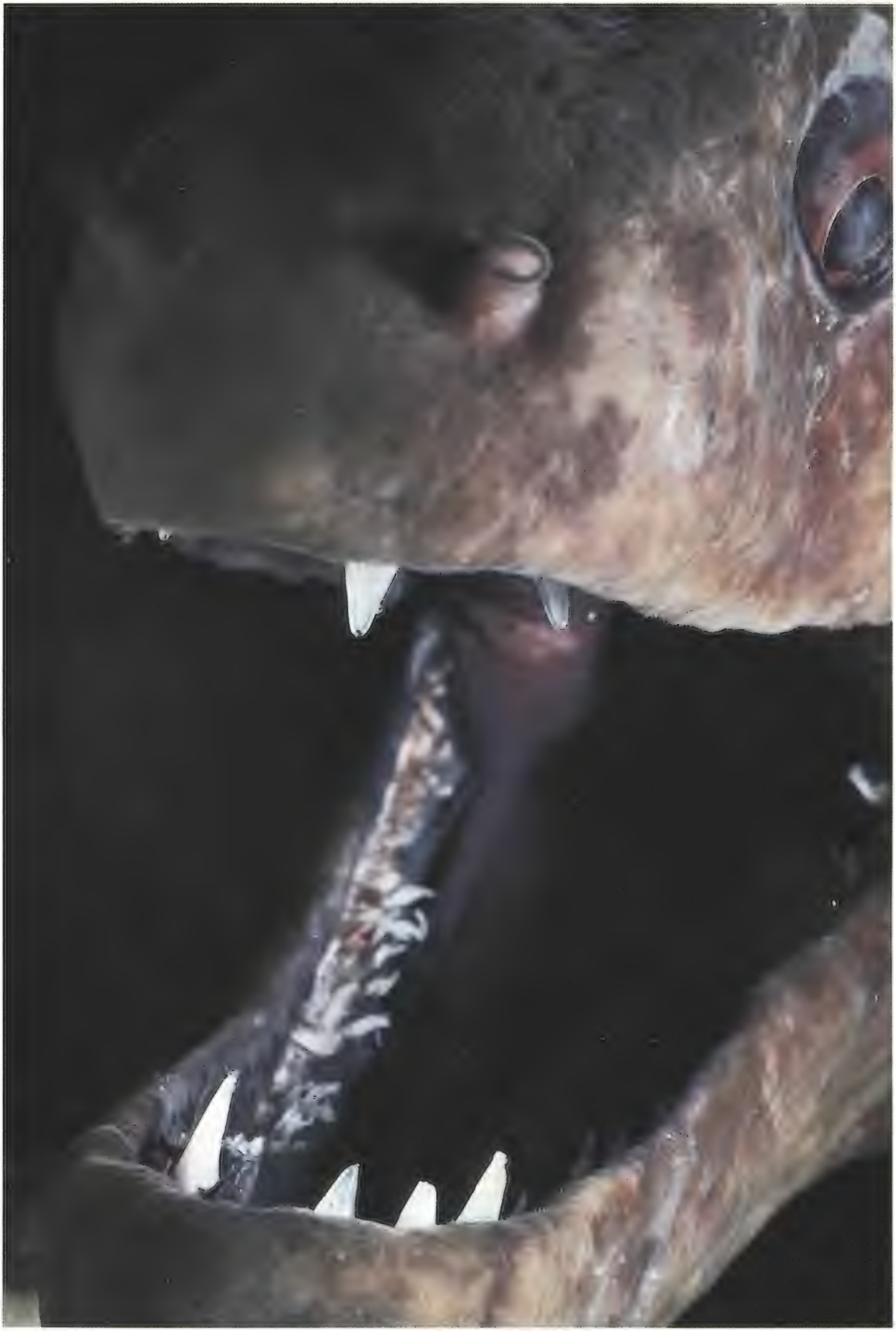
But the reef houses so many different kinds of animals, and those animals have such diverse habits, that even mundane changes of the guard become magical. Every group of reef creatures–from butterflyfish to corals and sea urchins–performs its own variation on the basic theme. And like orchestral variations composed for piano, violin or clarinet, those behavioral variations are shaped by the character of the instrument that performs them. What's more, because sea urchins are so different from corals and fishes (far more different than, say, an oboe is from a saxophone, or for that matter, a gorilla is from an owl), the range of behaviors on the reef is far broader than that of all the world's temperate forests combined.

That's why dawn and dusk on the reef are particularly interesting. The twilight hours wield disproportionate power to shape the lives of reef animals–and even the histories of species. Dozens of ecological groups of animals are drastically altering their behavior at the same time. The result, at first glance, is reminiscent of the hustle, bustle and confusion of a rush-hour commute in a modern city.

But what happens on the reef isn't just any old rush-

In the dark of the reef, tubes on snout of moray eel–chemical receptors–enable it to find prey by odor.

Photographs by Jeffrey L. Rotman



At sunset in the Red Sea, scarlet anthias hover about a coral outcrop in which they will shelter.

hour traffic jam; it is rush hour in a city with no police force, no lights on streets and sidewalks or in buildings, and no social code governing behavior. Predators prowl the reef's byways, taking advantage of dusk and confusion to stalk their prey, forcing a constantly escalating evolutionary struggle between those who need to eat and those who prefer not to be eaten. That struggle has guided the most prolonged and elaborate changing of the guard in the natural world.

The scene for twilight changeover is set by daytime fishes. Compared with the rest of the coral community, whose roots stretch back before the time of the dinosaurs, many of today's daytime-active groups are evolutionary newcomers. Their eyes, finely tuned for acute color vision, function as well or better than our own in the bright blue light that bathes the reef by day. Their evolutionary adaptations enable them to make their living by preying on different organisms, in different places and in different ways. Some feed on plankton, some graze on aquatic plants and algae, and still others ferret out secretive crabs, worms, snails and sea urchins that live on the reef surface or in burrows in coral rock. Some of these fishes, such as triggerfish, use sharp teeth and powerful jaws to crush or pick apart the defensive armor that shields their victims from nearly all other enemies. Their bright colors–and color changes–help them advertise their presence, their sex, their readiness to mate or their willingness to fight. One would think their visual impact would also make them highly susceptible to predators, but most stay close enough to the reef to be able to take immediate shelter should danger approach.

The success of evolutionarily recent fish groups contrasts with the poor showing made by older fish groups, which still employ an evolutionarily more primitive feeding strategy: most feed on large prey, many are fish-eaters. These chase-and-gulp predators will attempt to snag a meal between dawn and dusk, but often fail because the sharp eyes and quick responses of daytime fishes enable them to detect and avoid predators while the latter are still beyond striking range. Solitary daytime fishes often hug the surface of the reef, staying close to refuges too small for predators to enter. (Certain predators, such as stonefish, get around this problem by lying in camouflaged ambush and striking at any unwary prey that wanders too close.) The few species that venture far from shelter (some plankton-feeders, for example) do so in large schools. They thus enlist the many watchful eyes of the group in the defense of each member and gain the advantage of confusing potential predators.

At twilight, however, the vision of diurnal fishes is badly compromised by dim light. Fish eyes can adapt to changes in light intensity given enough time, just as ours can. But even our highly developed mammalian eyes, which adapt fairly rapidly, have trouble *while* they are making that adjustment. That's why driving a car at dusk is more challenging than performing a similar visual task during either the day or night.

"Pajama patterns" for evening wear

Daytime fishes apparently face a much more serious visual handicap at twilight, akin perhaps to the temporary blindness we face after walking from a sunlit street into a darkened movie theater. Faced with that visual disadvantage, and surrounded by adversaries alert for any wrong move, diurnal fishes must change their survival tactics radically as darkness falls. With their eyesight compromised, individuals, pairs, small groups and schools all stop routine feeding behavior. While they dart about nervously, bold daytime markings fade and are replaced by simpler and darker "pajama patterns" worn through the night.

As their patterns and colors change, the fishes actively seek shelter, each hiding in its own way and in places it finds comfortable. Parrotfish search for holes and caves deep in the reef. But just finding the right spot isn't enough, for parrotfish enter a nearly comatose state that resembles human sleep. That torpor would seem to leave these fish at the mercy of nighttime predators. Many

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parrotfish secrete a cocoon of mucus that covers them from head to tail during the night. At one time it was thought that the cocoon shielded them from predators that hunt by scent, but that seems not to be the case. No one knows what, if anything, the cocoon accomplishes.

Curiously, while most daytime fishes are heading for cover, others, such as surgeonfish, engage in elaborate mating rituals as light dims. Why do so many choose dusk? And why do some stray so far from home to vent their libidinal urges? Most evening spawners put themselves at considerable risk by frolicking in the open. Even more puzzling is the fact that some species enter what researchers call "spawning stupor"–a state during which they show surprising and uncharacteristic disregard for personal safety.

To answer these questions, we need to look at the behavior that many dusk spawners share. They all abandon their eggs, sperm and whatever offspring result to a drifting, planktonic life. This apathetic approach to reproduction makes their tiny, floating eggs and defenseless larvae easy prey for the sharp-eyed plankton-eating animals that swarm over the daytime reef.

Those sharp eyes, however, need bright light to function. And that's why the escapades of surgeonfish and other evening spawners make evolutionary sense. Spawning at the end of the day helps shield the eggs–at least for the first 12 hours–from hordes of daytime plankton-eaters. Releasing those eggs at some distance from the reef further protects them from harm–and puts them where currents are more likely to disperse them. Thus, the spawning fishes place themselves at risk in ways that help ensure the survival of their offspring.

Surgeonfish must shelter before total darkness, however, and because their sexual adventures take them far from home, returning to the reef alone is risky. The now exhausted fish form new single-file processions and head back to shallow water. Perhaps to get their bearings, all these trains pass close by their original reconnoitering point before splitting into smaller processions that head off in different directions. As these smaller trains proceed along the reef, individuals leave one at a time to dive into shelters whose locations they seem to know.

By this time, all familiar reef fishes are vanishing into personal shelters. Butterflyfish, even those that live in pairs, shelter one by one in favored resting spots they use for years. Triggerfish, fearless and combative by day, turn tail and dive for cover. Once inside a cozy crevice, each animal uses a large, stiff spine on its dorsal fin to wedge itself firmly in place.

Even damselfish and scarlet anthias, whose tightly knit schools are almost impervious to predation by day, play it safe. At dusk, even the slightest wrong move can prove fatal because schooling jacks, semisolitary snappers and reclusive groupers–all of which have eyes better suited to dim light–pick off isolated, distracted or straggling individuals with ease. Small wonder that these smaller fishes hover ever closer to the reef and seek refuge. Ultimately, they pack themselves so tightly into spaces be-

Within the stinging tentacles of a sea anemone, a clownfish (partially visible) is safe by night or day.

The small eyes and bright colors of a parrotfish, here in nighttime torpor, identify it as a day fish.

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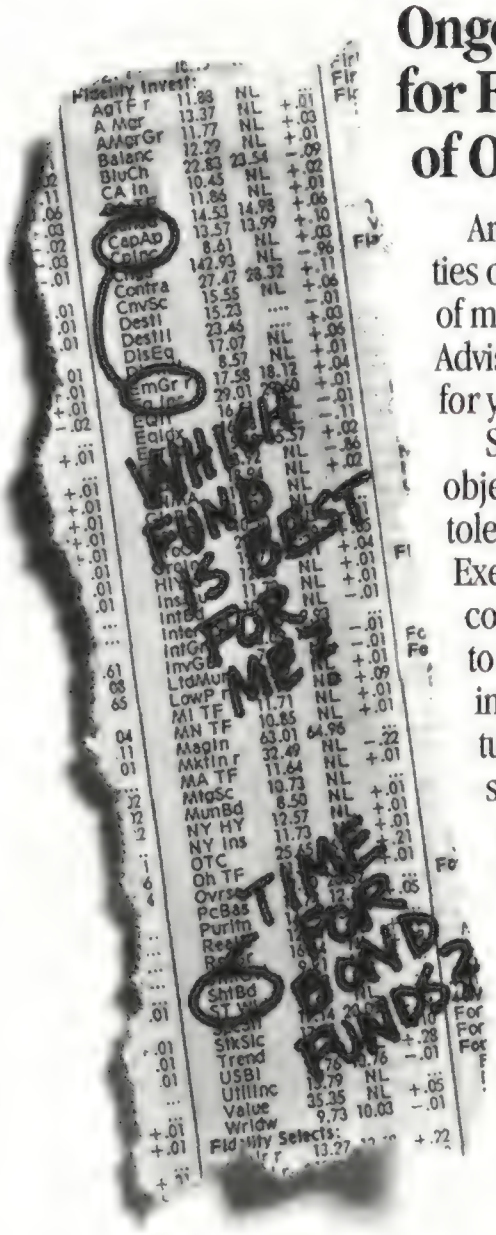

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tween hard coral branches that the entire school seems to disappear.

The 20-minute stretch that begins about 10 minutes after sunset is eerie for its near-total stillness. All the multicolored clouds of plankton-eaters have vanished; not a single wrasse, angelfish or triggerfish can be seen. Even more disconcerting, the water is preternaturally quiet. Gone are the popping sounds of pistol shrimps, the crunching sounds of parrotfish feeding, the grunts of damselfish.

The reason for this quiet is obvious: jacks, groupers, snappers, reef sharks and other dusk-active predators are at the peak of their powers. These fearsome, solitary hunters lurk just above the reef, where nondescript coloration makes them difficult to see as they hover, constantly on the lookout for wayward daytime fishes. Jacks are particularly adept at positioning themselves beneath their prey, silhouetting them against the waning light. Then, striking from the shadows, they lunge upward with such speed and force that they often break the water's surface. The nearly blind prey, unable either to see or react in time, rarely escape.

Schooling predators use a different tactic, stalking quarry in much the same way that wolves and wild dogs hunt grazing animals that travel in herds. Jacks aim for groups of schooling fishes brave (or foolish) enough to wander too far from the main body. Working both as individuals and as a team, jacks split victims into smaller groups and corral a few of them at a time, up against the surface of the water. Once the siege is set, individual jacks take turns making brief, wild dashes into the center, not so much to grab individuals as to scare a few out of the school, where they become easy targets for others. The hunt continues until thwarted by total darkness.

Even as daytime fishes are driven from sight, their prey can begin the work of the night shift. As soon as all those constantly probing piscine mouths and prying eyes are gone, the surface of the reef begins an astonishing transformation. Among the first to react are hard corals, which make themselves as scarce as possible by day. Expelling water from their flexible bodies, coral polyps shrink down and sink as deeply as possible into pores and crevices in the limestone skeletons they build for themselves. Nothing offers complete protection, but the deeper they withdraw into their homes, the safer they are from small, agile jaws and sharp teeth.

When coral-feeding fishes retire, corals undergo a metamorphosis that is both visually dramatic and ecologically significant. As the last daytime fishes disappear, corals inflate their bodies with water and stretch out fingerlike tentacles armed with stinging cells to snag plankton. In the space of a few minutes, hard coral colonies are transformed from inanimate-looking lumps of limestone into collections of hungry mouths surrounded by waving tentacles. And as hard corals emerge, their soft coral cousins come to life in their own way. Expanding their bodies and extending countless polyps, they grow to several times their daytime size as they sway gently with the current.

One by one, other invertebrates begin to emerge, aware, somehow, that their most dangerous enemies–triggerfish and their kin–are tucked in for the night. Some species of nudibranchs, shell-less sea snails whose brilliant colors have earned them the nickname "butterflies of the sea," come out at night to graze, their naked bodies temporarily safe from piscine jaws. Crabs, some of which are no larger than a thumbnail, others of which would make a hearty meal for a human, begin foraging. Brightly colored tropical lobsters emerge cautiously from their burrows.

Among the most unusual creatures to appear are sharp-spined sea urchins and their kin. Urchins crawl from hiding spots to meander ponderously across coral rocks as they graze on algae. Brittle stars, reclusive and anorectic-looking relatives of more common starfish, slowly and tentatively extend spidery arms from tiny crevices. Finally emerging, they scuttle across the reef with surprising speed, allowing scarcely a glimpse of their flattened, pentagonal or circular bodies. Sea lilies, still bearing a remarkable resemblance to fossil forebears 250 million years old, appear. At first these peculiar animals, which can have as many as 55 feathery arms painted in striking colors, keep all their appendages curled so tightly that they resemble balls of coiled wire. Taking as long as half an hour, they crawl slowly from hidden cavities within the reef toward perches atop coral branches exposed to the current. Finally grabbing hold with a second set of smaller, wiry arms, they settle into place for the

This article from The Coral Reef at Night, *text by Joseph S. Levine and pictures by Jeffrey L. Rotman, is their fourth collaboration in* SMITHSONIAN.

The crowded spines of a scavenging sea urchin give protection as it laboriously inches along a dark reef.

A giant clam feeds all night, pumping water through gill-like structures that capture planktonic food.

Aptly named bigeye emerges at night to feed. Blinded by strong light, it spends daylight hours in shadows.

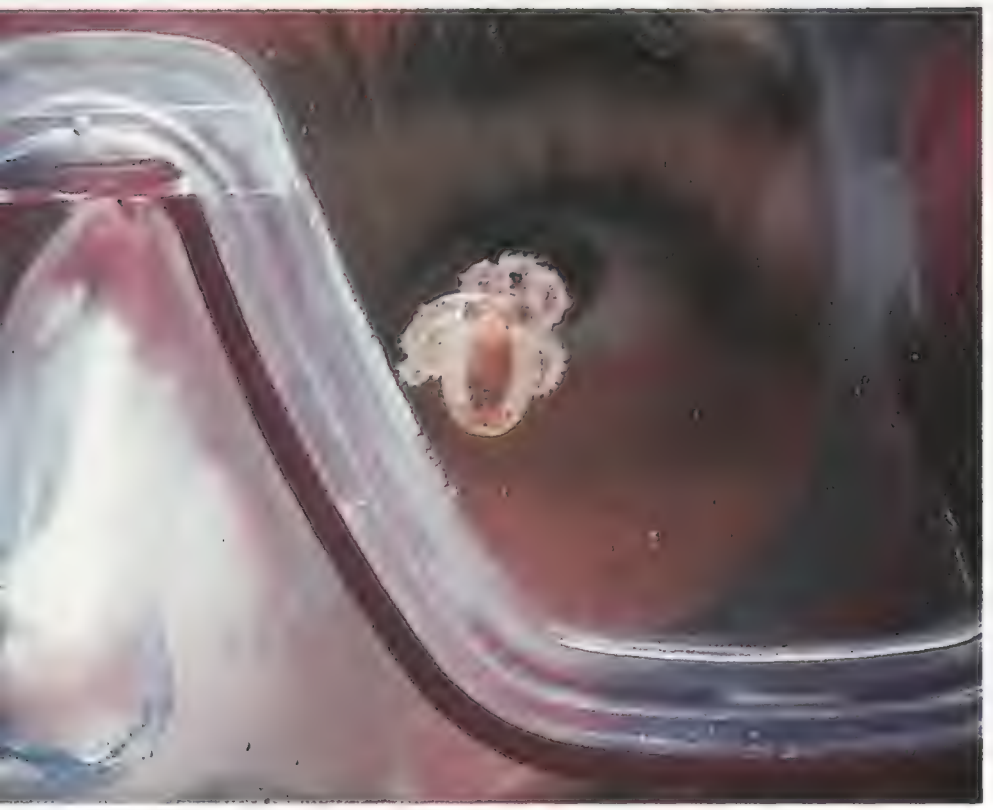
Colonial anemones (a different species from that on page 108) wave tentacles in the safety of the dark.

Inconspicuous by day, a crinoid unfolds its brightly colored arms at night to capture tiny food particles.

Midnight off Borneo: a turkeyfish raises the venomous spines of its dorsal fin as an intruder approaches.

Late at night, a bristleworm undulates through shallow water in the Galápagos.

A crab that looks as though it were made of electricity ventures through some soft coral under cover of darkness.



A very vulnerable octopus hatchling, eye to eye with a nocturnal diver, may grow to be a foot across.

night, expanding into semicircular fans positioned at right angles to the current. There they remain throughout the night, waving their arms in search of plankton.

Roughly half an hour after sunset the last vestiges of light disappear, and the rest of the night shift begins to creep, crawl, slither and swim out into the open. Some have spent the day hidden away in tunnels deep within the coral labyrinth. Others, such as soldierfish and cardinalfish, have sought sanctuary in the shadowy mouths of open caves or lurked beneath overhanging coral ledges. Now they emerge, their huge, staring eyes revealing a nocturnal bent. Somewhat nervously, they take up positions immediately above the reef that were recently abandoned by the daytime crowd.

At the mouths of coral caves in shallow water, schools of sweepers emerge from the shadows in which they have remained all day. Gradually, more and more individuals appear and gather near the cave entrance, where they "pace" nervously up and down.

Young grunts, which rest torpidly around favored coral heads by day, become restless as dusk approaches. They converge around a landmark that juts out from the reef toward a preferred feeding ground–a sand flat, perhaps, or a lush bed of seagrass. For a while they seem ambivalent about going any farther; a few individuals make brief, anxious forays, but rarely get more than a yard before they turn tail and head back to safety.

As total darkness approaches, the night shift finally shrugs off its uncertainty. Sweeper swarms break up into smaller groups that charge off the reef toward the open sea. There they vanish into the darkness, scattering widely in search of planktonic prey. Juvenile grunts finally follow the lead of the adventurers among them and stream off the reef toward greener pastures several hundred yards away. On reaching their goal, individuals head off on their own, feeding throughout the night on worms, small shrimps and other sand dwellers.

Both of these fishes, like their diurnal counterparts, know their resting and feeding areas well. Sweepers feed all night in pitch darkness and in water so far from the reef that divers have yet to track them. Yet each sweeper somehow finds its way back to the very same cave in which it sheltered the previous day. Grunts, for their part, shelter in the same coral head, assemble at the same staging sites, follow the same migratory route and feed in the same places year after year.

In the meantime, total darkness brings out the reef's true nocturnal predators. A few of these exclusively carnivorous animals are remnants of the ancient fish assemblages that dominated ancient coral reefs while *Tyrannosaurus* was king on land. One current theory holds that these fishes, once active by day, moved slowly into darkness over time. To some extent they were pulled, drawn by the evolutionary flight of their even more ancient prey, which took up nocturnal habits to escape toothy jaws. As primitive fishes' prey made themselves scarce by day, the hunters followed, evolving in the process the huge, sensitive eyes that distinguish them from the daytime crowd.

Every diver's nightmare: moray eels

Soldierfish are prime examples. Their eyes produce useful images in near-total darkness, but these images aren't as sharp as those produced in daytime. That's why they pursue bigger targets than their day-active counterparts, and why they are obliged to stalk their quarry at close range. More frightening are moray eels–animals most associated in divers' minds with "jaws" on the reef. Most species of morays (and there are many) spend both day and night in the shadowy netherworld of reef caves and tunnels, preying on animals unfortunate enough to be cornered in a niche large enough to admit the eels. Morays' sense of smell–like that of sharks–guides them toward prey from a surprising distance.

Throughout the night, all these creatures of the dark transform the reef into a fantasy world that fascinates and challenges even experienced divers who know the daytime reef well. Then, during dawn, the events that occurred at dusk happen in reverse.

Plunging into the water during the last few moments before daybreak, while the sky is dark and the water still pitch-black, divers are apt to feel lonely. Nighttime predators–last to rise and first to retire–have already started slipping back into their holes. There are, scattered around the reef, a few straggling soldierfish and

squirrelfish. Groupers, after a night on patrol, look like nothing so much as half-dazed night watchmen awaiting the end of their shift. As these groggy worthies retire, the nighttime wanderers–grunts, sweepers and others–return, first milling about near their resting places and then heading for cover as the water brightens.

Slowly, steadily, the day shift begins. One or two at a time, parrotfish in fraying cocoons stir fitfully. Soft corals melt like wax as the first beams of sunlight strike them. Pulling in their polyps, they shrink to a fraction of their nighttime size. Hard corals follow suit. Sea lilies wilt as light hits them, pulling in feathery arms and skulking down into hiding places. Few fishes are visible as the dawn equivalent of the quiet period passes.

Shortly, however, individual events gather momentum. First fusiliers, initially a few at a time, then dozens, then hundreds, return from feeding forays off the reef, cluster near the reef crest and swarm around coral heads in huge numbers. Twilight predators launch another round of strikes. Jacks, in particular, work the fusilier schools constantly–surrounding them, swooping in and out among them, trapping them near the surface. At first they succeed, but as the water continues to brighten, prey detect them sooner and evade them more efficiently. Once the sun actually rises, jacks are reduced to daytime games, worrying the fusiliers with passes that the school evades with the grace and apparent ease of figure skaters carving arcs in clean ice.

Then, within 15 minutes, the face of the reef is transformed as daytime fishes stream from hiding places. Still wary and still a little drowsy (if they could, they would rub their eyes), they hug the reef and take stock of their surroundings. The entire daytime fauna, squeezed into a fraction of the space it normally occupies, forms a swarming mantle of living color that seems all the more vibrant and alive in contrast to the monochrome emptiness that preceded it.

Then, slowly, with increasing speed and confidence, butterflyfish and angelfish, damselfish and wrasses, begin to make forays to greater distances. Pairs reform. Schools take up residence. Territorial boundaries are reclaimed. The familiar daytime reef is back in business.

Shortly after 3 A.M. a newly hatched hawksbill turtle (and its reflection) makes a mad dash across the reef. This one managed to avoid predators on the beach, but few hatchlings will survive to breeding age.

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City Pride Bakery

By William Severini Kowinski

The tale of City Pride: people who wouldn't give up

When a Pittsburgh bakery closed its doors, unemployed workers took a big gamble– and found a way to make their daily bread

They'd been hearing the rumors for months, but it was still a shock. In March 1989 the notice simply appeared on the bulletin board near the lunchroom door, the one they always checked for new job postings and other information. In 60 days the Braun Bakery would shut down production and close its doors, after a hundred years of baking bread for Pittsburgh, Pennsylvania.

For Ralston Purina, the international conglomerate that now owned the bakery, the closing was part of a national reorganization. It seemed more economical to make its products at a few mega-plants, like one in Philadelphia, and ship to cities like Pittsburgh.

At first, some workers, such as Wilma Harris, refused to believe it. She'd been at Braun's for 13 years and, at 43, had two grown children and two granddaughters living with her.

A small-boned woman with a ready smile, Harris paused from her job running the bread bagger to look around the noisy plant floor. There was Pearl Alexandre, who came aboard the same year she did; and Chuck Geiger, who started a year earlier. They'd be in trouble, too. But it was even worse for the old hands who would lose out on their pensions, like Richard Sipes, a 20-year veteran in the shipping department; Ali Deen, with 22 years; or Joe Zajac, who'd worked his way up to production assistant superintendent over 30 years at the bakery.

Some, like Harris, were from the predominantly black neighborhoods near the Braun's plant, on Pittsburgh's North Side; others came from the city's ethnic neighborhoods–Polish, Italian and so forth. They all worked hard together, and they made good bread.

Yet, except for Wilma Harris and her coworkers, the closing of this single plant could seem like no big deal. After all, thousands of manufacturing jobs had been lost in this region in the past decade already, so what were 110 more? And what could they do anyway? It might be a one-day Pittsburgh story, worth a few minutes on the evening news, when the last loaf of bread rolled out and Pittsburgh lost its last commercial bakery.

But that's not what happened. What did happen was this. A tenacious group of unemployed bakery workers, along with an organization born from the ashes of the city's vanished steel mills, an array of public officials and community activists, a union, some nuns, a man from California, a young local tycoon, plus at least one act of God–as well as a city's need for its own daily bread–together saved the bakery. The effort made international news, providing a model others are already trying to emulate. To understand what happened, you must understand the people involved and a few things about Pittsburgh.

From the first meeting at the Local 12 hall of the Bakery, Confectionery and Tobacco Workers Union, the workers spoke with sadness and anger. "This is a bakery where people worked until they died, and their sons went to work after them," said Walt Salachup, at Braun's for 21 years. "We have a lot of fathers and sons working here together," said Mike Melaragno, who had worked at Braun's since he came from Italy in 1955.

The announcement of Braun's closing also saddened and angered Pittsburgh. Even in a city used to plant closings, a shiver went down the civic spine, for Braun's was the last of the Pittsburgh bread makers, dating back to 1889. When Mike Melaragno started at Braun's in the 1950s, its octogenarian founder still occasionally came to the bakery, pulled up a chair and watched.

Mobilizing a rescue team

After E. R. Braun died in 1958, his company was acquired by Continental, the nation's largest bread-making company; at that time, Pittsburgh was the eighth-largest bread market in the United States. But familiar brands soon started disappearing, as other local bakeries closed and consolidated. Continental itself was swallowed up by ITT and, in 1984, was purchased by Ralston Purina. But the Braun name and original bakery plant had survived. So when the news hit of Braun's imminent closing, Pittsburgh mobilized its forces to save it. City and county politicians–even the state's senior U.S. Senator, the late John Heinz–together with the union and a number of

Proud City Pride employees stand before Pittsburgh, which almost lost its last remaining major bakery.

Photographs by Richard Howard

Richard Sipes (shipping department): "We worked 16-, 18-, 20-hour days putting the machinery in."

Wilma Harris (packing machine): "Everybody who could came to meetings–whether they were working or not."

other organizations formed a coalition to try to persuade Continental to reconsider. They came up with a $3.4 million package of tax credits, subsidies and other assistance to keep Braun's open. Meanwhile, as meetings became more frequent, the workers kept baking and delivering the bread. "Even though the people knew the plant was closing, they kept on working," says Joe Zajac, now manager of purchasing and inventory control.

But the rescue efforts were futile. The plant closed on May 13, as scheduled. "I didn't really believe it would happen until that day," says Wilma Harris today. Then the Braun's workers faced some crucial personal decisions. For many, the first and most poignant was whether to stay in Pittsburgh.

Given the choice, Pittsburghers–especially blue-collar Pittsburghers–stay put. But when the steel industry collapsed in the early 1980s, taking with it thousands of related manufacturing jobs, some 115,000 residents fled Pittsburgh and surrounding Allegheny County. It was the second-largest population loss in the country, with the city of Pittsburgh dropping from 677,000 people in 1950 to 370,000 in 1990. While there has been some growth in new high-technology and service jobs, this prosperity largely eludes workers from the old industries.

The choice for Braun's workers was made even sharper when Continental offered jobs in its huge Philadelphia bakery and a $1,500 moving allowance to any Braun's employee who would relocate.

But at that first union meeting, the Braun's workers had affirmed a fateful decision that would set the stage for everything that was to come. When 20-year veteran Frank DeMino announced forcefully that he wasn't going to leave Pittsburgh, the other workers cheered.

"It's just someplace different," Richard Sipes explains. "I've lived in quite a few states and overseas, but there's no place like Pittsburgh. And there's no way I would leave." Eventually, only three of the Braun's employees went to Philadelphia; all were supervisors, and all came back.

There was also a strong feeling within the group to stick together. So, during the two months between the announcement and the closing, as the coalition leaders tried to keep Braun's from closing or find another buyer, some of the employees began to toss around another idea.

In a bakery that produces bread destined for a city's breakfast tables, a lot happens while much of the city sleeps; the first shift begins a little after midnight. Away from the hissing pipes, the clicking conveyor belts and the clatter of pans being pushed along the rollers, the workers take their breaks in a small lunchroom. In this bare oasis of quiet, under dim fluorescent light with a coffeepot and the soft glow of vending machines, they talked about taking their future into their own hands.

Pearl Alexandre (packing): "We didn't know about running a business, but we knew how to make bread."

Ali Deen (sanitation department): "If you go someplace else you start over; that's what we didn't want to do."

"We were sitting in the lunchroom and we said, why can't we get our own bakery?" Richard Sipes recalls.

They already had a strong ally. The coalition that tried to keep the Braun plant open kept working even after that effort failed. Particularly active was the Steel Valley Authority and its executive director, Tom Croft.

Pittsburgh and nearby towns were the nation's steel center for nearly a century, outproducing the rest of the world during World War II. In the mid-1980s, the fury and frustration accompanying the tearing down of these factories led to a series of angry milltown meetings. The meetings didn't save the mills but did result in an innovative state-chartered agency, the Steel Valley Authority. It was formed to encourage economic development in nine western Pennsylvania communities, including Pittsburgh. With an active staff knowledgeable in researching and putting together redevelopment deals for the industrial workers left behind, one of the SVA's tasks is to look out for troubled industries by talking with businesses and public officials. Through this "early warning network," Tom Croft heard about Braun's and joined the effort to save it.

The author, who lives in Pittsburgh, has written for SMITHSONIAN *on artist William Wegman (September 1991) and the Eugene O'Neill Theater Center (March 1992).*

When a core of 62 former Braun's workers decided to explore starting their own bakery, they asked him: Why couldn't we build a new plant ourselves? To someone else it might have seemed a hopeless pipe dream. But Croft, who'd created programs for dislocated workers in Seattle before coming to Pittsburgh, saw something special in the Braun's people. "I've worked with shipyard workers and steelworkers and lumber workers," he says, "and I've never seen a group as cohesive and smart and savvy and dedicated as this group."

First, Croft helped them organize a start-up committee. Joe Zajac, the only member of Braun's management to join the effort, was elected chairman. Wilma Harris was a member. One of their first tasks was to come up with a name for their prospective company. Instead of hiring an advertising or public relations firm, the workers tried to come up with a name themselves. Harris recalls asking her sister, Diane Arnett, for suggestions. "She started writing down names. Then she got some cardboard and put a black outline of the city skyline on it, and wrote the name under it: City Pride." Harris took it to the next meeting where Sam Papa, the union president, held up all the suggestions. Diane Arnett's idea won.

That summer of 1989 began with optimism and hope. Workers armed with pencils and clipboards fanned out with petitions to get grocers and potential consumers to

Tom Croft, who is executive director of the Steel Valley Authority, helped ex-Braun's workers in their struggle. At one point a supermarket manager told him, "You guys are amazing. You don't have a bakery, a product, financing; you don't have anything. But I like what I see."

say they'd like to buy City Pride bread. Forty grocers and more than 6,000 citizens signed. "They knew what we were going through," Chuck Geiger says. "We went to mom-and-pop stores, any place that sold bread. We stopped people on street corners. I never ran into one individual who said no. Not one."

Joe Zajac, convinced that the old Braun's building and equipment were too antiquated, sketched his ideas for a new plant layout and sent others to scout for possible buildings and locations. Although they sought expertise on some matters, they were confident in their own competence. "We knew we didn't know a whole lot about running a business," says Pearl Alexandre, "but we knew how to make a loaf of bread."

That summer things looked encouraging. Wilma Harris joined the others on bus trips to Harrisburg to lobby state representatives and state agencies, and went downtown to talk with city and county officials. The state came through with money for a study–if the workers would contribute 10 percent of the cost. This came out to $50 each. One of the first to put his money in was Ali Deen. "It was either go to Philadelphia or start our own bakery," he explains. "If you go someplace else you start all over again, and that's what we didn't want. For us old folks that's the bottom line."

The group's morale peaked during the Labor Day parade, which is still one of the biggest in the country. On a hot, sunny day, they marched for the first time under the banner of City Pride, sold City Pride hats and buttons, and wrapped a Volkswagen bus to make it look like a loaf of bread. "People were shouting at us, 'When are you going to open?'" Harris remembers.

Then, when a study by a food industry consultant made it clear that Braun's withdrawal meant that Pittsburgh was now the largest metropolitan area in the country without a major bread maker, City Pride hired a project manager to do a detailed feasibility study and work out a plan for getting a plant and equipment. Harris and the others were excited. Some of them were talking about being open for business in March, a year after Braun's closed.

But as autumn deepened, the project manager had bad news. "He seemed so negative," Harris recalls. In fact, his study was showing that starting a new bakery wasn't going to work. "At this juncture, the project appeared ready to die," Croft says.

But then the workers got two big breaks, at least one of which could safely be called an act of God. The first was the snowstorm in December 1989. "We didn't get too much of it here," Zajac remembers, "but it hit the outlying areas and stopped the trucks from bringing the bread in." Pittsburgh's bread was coming in from Ohio, Philadelphia and even Buffalo, and when the storm roared off Lake Erie and halted traffic on Interstate 80, there was no bread on Pittsburgh's shelves for Christmas.

Croft and the others saw the opening. "We'd been talking about how we could produce bread of high quality," he says. "But at this point we began asking, 'Do you want bread in this town or not?'" The supermarket chains started listening. Even on snowless days, their bread was anywhere from three days to a week old when it hit the shelves.

The other big break was a fellow with a suitcase, a man from California named Dan Curtis. He was asked to come to Pittsburgh by City Pride's first project manager, who wanted his findings to be reviewed by other experts. An affable, enthusiastic 36-year veteran of the bakery business, Curtis was supposed to do a quick three-day quantitative study; but as it turned out, he did much more–and stayed much longer.

Curtis had grown up in California, where his father worked as a route salesman for a bakery. He remembers

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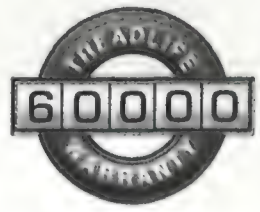

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being 5 or 6 years old, sitting up on the backseat of the family car, an old 1936 Plymouth, as his mother drove to pick his father up after work. "When we got to the bakery I could smell that bread. I used to tell my mother, when I get big I want to work in a bakery, so I can smell that bread all day long."

On his first trip to Pittsburgh he impressed the City Pride people. On a scouting trip to local stores, Zajac watched Curtis talk to a supermarket manager known to be difficult. "He took command of that situation," says Zajac. "He's a real salesman. When I made my report at the next meeting, I said, 'I think this is the person we need to get us off the ground.'"

Curtis disagreed with the findings of the project manager. He believed that if City Pride sold itself not as a new brand but instead as the sole wholesale supplier of fresh bread to a supermarket's own label, it would start strong and grow. He also believed that the city's response was a key element.

When the City Pride workers asked Curtis to stay with the project, he said no. "I'd never been in Pittsburgh in my life; I wasn't interested in moving there. But just looking at their faces and the condition of the city, I said, 'Well, I'll give you a couple of weeks.'" Those weeks stretched into a year, and then two more years.

In March 1990, a year after the Braun's plant closed, Curtis became City Pride's project manager. After several months of flying back and forth from California, he moved into a hotel and then an apartment. His days were hectic. After a walk at 4 A.M. and church at 6, he held a half-dozen or so major meetings around the city with possible customers and backers, and often flew off to meet potential investors in other cities. "I went out on the street and knocked on a ton of doors. I know the streets of Pittsburgh very well now," Curtis says. "At first we were turned down by everybody. I kept going to a level above–in some cases I got to the very top–and just did not accept no."

Meanwhile, the 57 workers who now formed City Pride had to face making ends meet. Unemployment insurance was helping, but it wasn't enough for everyone. Some were on food stamps. Zajac was living from his savings; he needed an operation on his knees, but he put it off so he could continue to work on the project.

Pearl Alexandre followed her husband to Florida, where he had a job. Through her union, Wilma Harris

City Pride bakers Melina Brojavic (left) and Joan Horciak guide bread on a conveyor belt into a slicer.

The equipment for the new plant was purchased used, from a California bakery, and then reconditioned.

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Robbie McClaran

Dan Curtis, the consultant who helped put the City Pride deal together, loves the smell of baking bread.

got a job at Nabisco, packing chocolate chip cookies. But they still stayed with City Pride. As a committee member, Harris was responsible for calling ten or so others to remind them of the monthly meetings or to tell them what happened at the last one if they missed it. Alexandre managed to keep in touch by mail. Besides passing on information and squelching rumors, these calls and letters kept up morale.

Then, in September 1990, Dan Curtis landed Giant Eagle, the largest supermarket chain in the Pittsburgh area, which had taken note of the December snowstorm. Curtis took a group of its executives to the Gold Medal Bakery in New England, where a few years before he had developed a marketing system that would serve as a model. City Pride, he told them, would guarantee delivery of bread hot from its Pittsburgh ovens, with a better taste than the out-of-town bread that required emulsifiers as preservatives.

Tom Croft remembers an early meeting with one of Giant Eagle's top managers. "After we made our presentations, he said to us, 'You guys are pretty amazing. You don't have a bakery, you don't have a product, you don't have financing; you don't have anything. But I like what I see.'" The chain signed a letter of intent to buy City Pride bread packaged under the Giant Eagle name. That and commitments from other grocers convinced the City Pride people to forge ahead.

Now they needed money. They turned first to some unconventional sources. Working through the Center for Social Responsibility in New York, Croft pleaded the City Pride case to religious groups that were investing in socially worthy projects. "We said, 'This is very risky, we don't have a company, we don't have anything, but is there a way you'd like to participate?'"

The first to invest money were the Sisters of Sorrowful Mother of Deer Creek, Wisconsin, and the Sisters of St. Francis of Philadelphia. They liked the idea of helping dislocated workers and creating jobs for the chronically unemployed. One of the nuns gave Curtis a small, smooth stone that she had carried for luck since she was 7. He put it in his pocket and kept it there.

The search for adequate financing took another year. Meanwhile, a site was found on the banks of the Allegheny River in Lawrenceville, one of the oldest parts of Pittsburgh, and the shell of a building was started. For their part, the workers negotiated a wage contract that committed them to making less money than they had at Braun's, in exchange for partial ownership with the eventual option of buying out the other investors. By now, many were feeling the financial pinch. Wilma Harris got off work one day to find that her car had been repossessed. "But nobody gave up," says Harris. "Everybody who could came to the meetings, whether they were working or not."

The workers kept the heat on the city's politicians, too. In turn, Pittsburgh mayor Sophie Masloff made repeated phone calls to friends at Giant Eagle and the banks to keep them involved. Meanwhile, the character of City Pride was being formed. It was going to be a community-based company, extending a hand to the long-term unemployed, people on welfare, women and minorities, the handicapped, and simply those who wanted a job with a future. "We'll give anybody a chance," Chuck Geiger said. "We all know what it's like to be unemployed." The City Pride logo carried the words, "The bakery with a heart."

A pork roast, band music and speeches

There were lighter times, like City Pride Day at the end of June, when Wilma Harris and the other workers gathered under a tent near the bakery site to eat the pork Joe Zajac had spent the whole night roasting, and to hear band music and morale-building speeches by city officials. But soon the project hit another snag.

The summer of 1991 was an endless round of weekly meetings with the banks and representatives of public and private investors–a dizzying array of federal, state, county and city government agencies, unions, public utilities, community groups like the Lawrenceville Development Corporation, and more church groups like the Episcopal Investment Fund, as well as the chief investors, two venture capital investment firms. In all,

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some three dozen separate sources. But time was running out. "We had these deadlines," says Croft. "If we weren't able to close by the end of September, basically things were going to fall apart."

Most crucial was the deadline for the bakery machinery. After many disappointing searches, Ron Higgs, an equipment expert and now a City Pride investor, found just what they needed: a complete bread-and-roll equipment package about to go on auction in San Jose, California. City Pride could afford only used equipment, and even trying to put together separate machines from various sources was prohibitively expensive. This was the solution to their problem, but the equipment's owners wanted a payment. At the same time, the builders of the prospective bakery building were wondering if they shouldn't turn it into something else.

It all climaxed in an epic week at the end of September, as two dozen participants plus a lot of lawyers took over the first floor of one of the city's largest law firms for several days of frantic meetings. Croft, Curtis, Zajac, union leader Sam Papa, and Steven Zecher from the Urban Redevelopment Authority pulled one late-nighter after another, negotiating amid a flurry of faxes and phone calls and messengers ferrying documents in and out. In one case, a state senator drove the four hours from Harrisburg to hand-deliver a crucial document.

To keep nervous banks and investors from falling out, the City Pride advocates found themselves playing hardball. When they threatened a recalcitrant bank with a candlelight protest in the rain in front of its headquarters, the bank relented. Later, Dán Curtis pulled out the stops in a speaker-phone conference with an indecisive utility company. "Finally we were just screaming at the guy," Croft recalls. "'If you don't do this, the whole project is going to collapse and we're going to let everybody know you caused it to collapse!'"

That company and the other backers stayed in. The marathon ended at about 7 P.M. on September 27, when the deal was sealed. The City Pride contingent promptly headed to the local bar to unwind.

Today, some of the City Pride workers do not discuss those three long years of unremitting struggle very easily. But when the topic turns to late 1991 and the days the 55 trucks rolled in with the bakery equipment, their eyes brighten and the words tumble out. With some up-front guidance from engineers, about 15 of them assembled the machinery that would be their bakery, filling a building longer than two football fields.

"I was the first one in here," says Joe Zajac. "I unloaded all the trucks and laid out the equipment. The building wasn't even finished yet."

"We worked 16-, 18-, 20-hour days, seven days a week, putting this machinery in," Richard Sipes says. "But it didn't bother us one bit. We really felt proud."

"People asked us why we were grinding the parts down, cleaning and repainting every piece," says Ali Deen. "Because it was ours." Says Sipes, "In six months' time we were taking tours around; they were asking me, 'This equipment is new, isn't it?'"

"That's how good it looked," Chuck Geiger says.

"That's how good it looked," Sipes agrees.

Then came the moment the former Braun's workers had been waiting for. For some, it was bittersweet–they had stayed with the group through three years of torturous uncertainty. Now, when the final commitment had to be made, some dropped out, mainly because they had other jobs they liked. But most didn't hesitate. Pearl Alexandre was back from Florida, ready to start. Wilma

Shipping supervisor Chuck Geiger (left) and Mike Kroskey review orders for bread from the area stores.

Joe Zajac (center) and two plant engineers discuss how to improve getting the raw dough to a conveyor.

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Harris quit her job at Nabisco, where she was making more than she would at City Pride and doing an easier job. "A lot of people tried to talk me out of it," she says. "But I'd seen it through this far; I wanted to see it succeed. And I knew it wouldn't work if we didn't have experienced people go in there to train the others."

In the end, 40 of the former Braun's workers walked into the new City Pride plant; they were joined by some 50 new hires, out of the 3,500 who applied, plus an administrative staff. "When we first came back here it was like being reunited with your family," Harris remembers. For two and a half months they worked the bugs out of the production process.

On September 10, 1992, City Pride had its grand opening. Along with the mayor and other officials, several workers were introduced, including Harris. "I didn't have to say anything–thank goodness," she laughs. The first person to speak was Pearl Alexandre. "Fifty-seven workers had a dream," she said. "Finally that small dream has now become real, a living part of our lives. . . . We conceived it. We believed it. We achieved it!"

They worked steadily from Saturday through early Monday morning, some of them 20 to 30 hours straight. City Pride baked its first bread for sale to the public on September 13, 1992, some 233,000 loaves that disappeared from supermarket shelves immediately.

Now they were back in their element: the flour-dusted factory floor, the big tubs of rising dough, the buckets filled with shaped dough clattering along the labyrinthine line, the hot loaves and muffins emerging from the oven. Upstairs in his office, Dan Curtis breathed in the smell of the baking bread.

Their achievement was trumpeted in New York and Washington newspapers and on the major TV networks. And still, the story was not over.

As Tom Croft points out, eight out of ten start-up businesses fail in the first year, and City Pride came dangerously close to being one of the eight. By early 1993, the bakery's survival was once again in jeopardy. City and county officials got on the phone to the man who had rescued two other hometown companies when they seemed doomed–42-year-old Michael Carlow. Born in a nearby small town and now based in Pittsburgh, Carlow had bought the Pittsburgh Brewing Company (maker of a local icon, Iron City beer) and the D. L. Clark Candy Company (Pittsburgh-based maker of the national icon, the Clark Bar, since 1886) from outside owners and turned both into successful enterprises. These bold rescues had made Carlow something of a local hero. With deep pockets and a proven record of understanding Pittsburgh consumers, he was the natural choice.

In March 1993 a deal was struck. With new loans from the county and city, and backing from local banks, Carlow's Pittsburgh Food and Beverage bought City Pride. "I give the union and the workers credit for City Pride," Carlow says; "all the local people who wanted to make a statement, to keep a bakery in Pittsburgh and save jobs. What they underanticipated was the capital they needed to see it through."

"The most obvious disappointment was that the workers lost their ownership share, although they continue to participate in the bakery's management," says Croft. Many see a value to the trade-off. "This man taking over is the best thing for everybody," Richard Sipes says. "We feel more secure about our jobs."

Today, City Pride is supplying bread to two major local supermarket chains and buns for the hot dogs at Pittsburgh Pirates and Pittsburgh Steelers games at Three Rivers Stadium. It recently introduced its first product under the City Pride name: Roberto Bread, named for perhaps Pittsburgh's greatest sports hero, baseball great Roberto Clemente (SMITHSONIAN, September 1993). More workers have been hired, and City Pride now looks forward to turning a profit in early 1994. "Just as they did with Pittsburgh Brewing and Clark Candy, the people of Pittsburgh have responded in a very positive way," says Michael Carlow.

Recently, some 500 unemployed bakery workers from Queens, New York, sent a contingent to visit City Pride. They are trying to start their own bakery, and are seeking the help of the workers and others who engineered the City Pride victory–the "largest community-development jobs project that I know of in the country, in terms of a grass-roots effort," says Tom Croft.

"When a plant closes," Croft continues, "the attitude usually is there's nothing we can do. But the City Pride workers said there is something you can do."

Bearing the label of a major Pittsburgh supermarket, loaves less than ten hours old are put on the shelves.

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By Richard Wolkomir

A chronicler of our thingamabobs and doohickeys

Whether it's pencils or Post-it notes or paper clips, engineer Henry Petroski has written the book. Will diapers be next?

Kelly Culpepper

Nobody knows more about paper clips and safety pins than Henry Petroski. Also, aluminum pop-top cans. Don't even mention zippers.

"An early use of zippers was to hold the canvas coverings of airplanes together," says Petroski, talking to freshmen at Duke University, where he chairs the Department of Civil and Environmental Engineering.

An unnerving thought: Snoopy's in his Sopwith Camel, flitting through clouds after the Red Baron–and one wing unzips! But this is no place for frivolous fantasizing. This is an engineering class. "Mailbag closures were another early use for zippers," Petroski tells the freshmen. "Also tobacco pouches and World War I money belts."

His students wear baseball caps. Their T-shirts display messages like "Lollapalooza Festival '92." And they come to class toting logarithmic calculators and 486SX notebook computers with 120-megabyte hard disks. They are the plugged-in Nintendo generation. But they dutifully jot down notes about . . . the zipper.

Last week they heard about paper clips. Coming up: tin cans. This is not what they had in mind when they signed up for civil engineering–something more on the scale of the Golden Gate Bridge or the Grand Coulee Dam. But it happens that their teacher is the planet's leading authority on what he has called the "extraordinariness of everyday things." Translation: gadgets.

Not high-tech gadgets. Henry Petroski is the champion of micro-tech, thingamabobbery's mundane hoi polloi. What Herman Melville did for sperm whales, Henry Pe-

Illustrations by Lane Yerkes

"The earliest version of the zipper, an ungainly assemblage of hooks and catches, looks as if it had crawled out of a Pre-Cambrian tidal pool."

troski does for paper clips and Post-it notes. In such humble doohickeys he sees the lineaments of human genius.

Petroski–a tall, quiet man with neatly clipped hair and horn-rimmed glasses–has written a 434-page book called (and entirely about) *The Pencil.* Novelist John Updike said it "amazed the reading public." And Petroski's latest book, *The Evolution of Useful Things*, is about dining-room tableware, masking tape, needles, book bindings, staplers, beds, saws, hammers, stools, axes, Big Mac packages, wheelbarrows, plastic trash bags and other basic gizmos, including zippers.

To edify his freshmen about the struggles of their professional forebears, Petroski projects on their classroom's screen an image of the earliest zipper. It is an ungainly assemblage of hooks and catches that looks as if it crawled from some Pre-Cambrian tidal pool. That is Petroski's point: engineering artifacts evolve according to techno-Darwinian rules, in which "survival of the fittest" is replaced by a different dictum, "form follows failure."

Petroski contends that engineers invent new stuff because the old stuff didn't work right. But then, neither does the new stuff. So we get even newer stuff. An example is our friend the zipper. To understand why we have the zipper, Petroski takes his students back to the Pre-Zipper Epoch, when hunter-gatherers fastened their hide togs with bone pins. Pins could work loose from your mammoth-skin wrap, letting in those Ice Age drafts. They also wore holes in your clothes. And they could stick you.

To fix the sticking problem, 2,500 years ago the Romans invented safety pins. But nothing held the point in its protective sheath except the pressure of the fabric it was fastening. Not until 1849 did a true safety pin appear, when New York inventor Walter Hunt got into debt. Hunt had invented lots of things. One was a sewing machine he never patented for fear it would destroy jobs, a scruple that today seems endearingly quaint. Maybe he was too soft-nosed. Hunt wound up owing his draftsman some money. The draftsman offered to forget the debt if Hunt would sign over the rights to whatever he could invent out of a piece of wire. Three hours of twisting later, Hunt had invented the modern "self-sprung" safety pin, which the patent said ended threats of "wounding the fingers."

Still, even Hunt's new safety pins were imperfect clothes fasteners. So were hooks and eyes, being bulky and apt to snag. Laces were time-consuming. Buttons were better, thanks to techno-evolution. When the Romans first invented them, buttons were inserted into a loop of thread or fabric. However, the loops frayed and broke. And so in the 13th century somebody invented the buttonhole. But buttons tended to eat away their buttonholes, which led to a further technological improvement–the reinforced buttonhole.

Time out for a Henry Petroski engineering-history footnote: button evolution was partly gender-driven. Women button up on the opposite side from men. Long ago gents tended to dress themselves, while well-off ladies had maids to help them. Most maids were right-handed. So buttons on ladies' outfits migrated to the side where right-handed maids could best manipulate them.

Even with such refinements as "his" and "hers" models, buttons were an imperfect technology. That became apparent when high-button shoes and boots came into vogue for navigating 19th-century streets, which were

Inspired by writing this article, the author is at work on two inventions: a self-sharpening pencil and a stapler that beeps when it's almost empty.

muddy or dusty and peppered with horse droppings. Doing up 20 buttons per shoe took forever. Humanity bent over its boots, crying out for a new invention.

In 1893 a Midwestern mechanical genius named Whitcomb Judson thought up a new fastener. It consisted, in effect, of a series of small hooks and eyes, and a metal slide you could pull up to fit the hooks into the eyes or pull down to unhook all the hooks. Judson fitted a pair of boots with his new "clasp locker" and got the backing of a Pennsylvania lawyer with money to spend. In 1894 they set up the Universal Fastener Company and embarked upon decades of frustration. Judson would redesign his fastener when it popped open unexpectedly or proved too costly to manufacture. The inveterate tinkerer never did manage to work the snags out of his innovation.

Along came a new intellectual contribution in the person of a Swedish-born electrical engineer, Otto Frederick Gideon Sundback, who designed turbogenerators for the Westinghouse Electric Corporation. Sundback joined the small slide-fastener company around 1900. He said he became "fully saturated" with the fastener's problems and lay awake at night "trying to find a way out." He got the tiny hooks to fasten better in the tiny eyes and renamed the fastener the "Plako." But it still wasn't good enough. Petroski writes of Sundback's telling the "rueful story of how the secretary of the company had gone out one evening with a Plako in his trousers and had to hurry home seeking a safety pin."

Hooks and eyes bite the dust

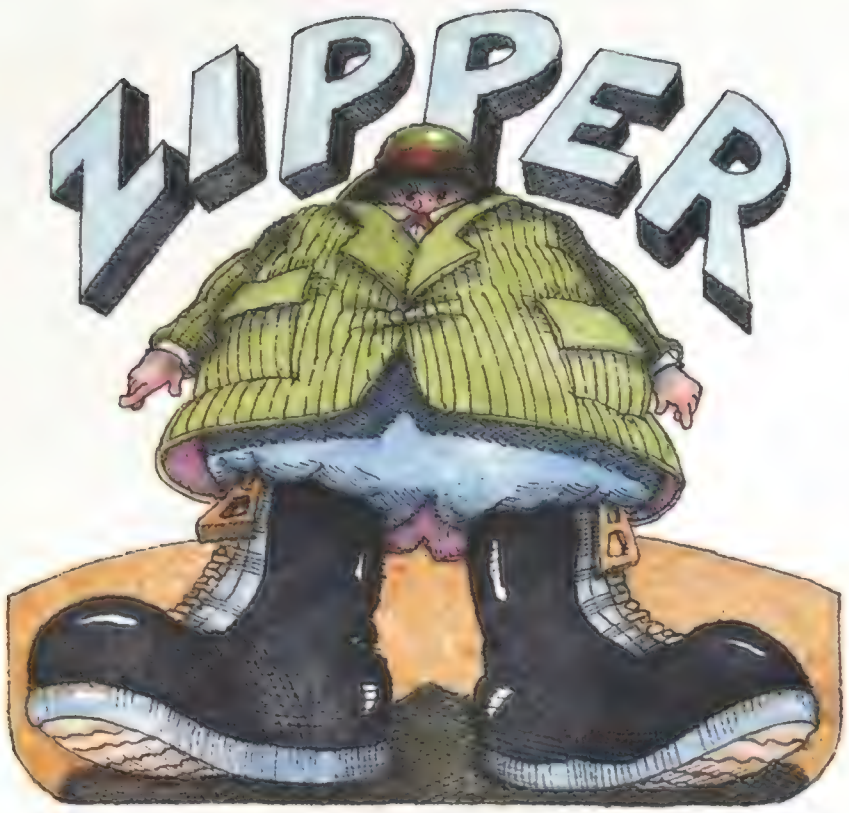
But backers kept materializing, like actor James O'Neill (father of playwright Eugene O'Neill), who found the new fastener could speed up his costume changes. The firm renamed itself the Hookless Fastener Company. And Sundback finally hit paydirt: no more tiny hooks fitting into tiny eyes. He replaced them with tiny teeth–shaped like spoons–that ran up both sides of the opening. When you pulled up the slide, it meshed the "spoons" together so that they nested, each spoon's convex bottom fitting into the concave top of the spoon below.

But it wasn't until 1921 that the B. F. Goodrich Company finally got the zipper on the map. The breakthrough idea was to use the new fasteners on rubber galoshes: "The Mystik Boot with the patented Hookless Fastener. Opens with a pull. Closes with a pull." But salesmen complained that "Mystik" sounded weird. Goodrich's president called for an "action word" that would "dramatize the way the thing zips." Then came his stroke of genius: "Why not call it the Zipper?" Before long, the term "zipper boot" had entered our lexicon, and over time the fastener itself became known as the "zipper."

Some historians accuse Petroski of neglecting the economic and social forces that underpin invention. And that may be true. What fascinates him is not the ups and downs of the dollar and the ruble or the expansion and contraction of the middle class. It is the engineer's cerebral cortex in action, doing its thing.

And to Henry Petroski, the long saga of the zipper embodies the engineering attitude: picky, picky, picky. "Engineers and inventors see technology's flaws," says Petroski. "But the inventor isn't satisfied just criticizing–he or she wants to make something better." Inventors often have other traits, too, like the ability to visualize objects in space. And most have an entrepreneurial itch. But Petroski says pickiness is the real mother of invention: the inventor spots a flaw in some gadget and wants to fix it.

"Doing up 20 buttons per shoe took forever: humanity bent over its boots, crying out for a new invention."



B. F. Goodrich Company called boot with the hookless fastener the "Zipper"; term soon entered our lexicon.

Sometimes, however, the invention manages to mutate.

Petroski cites the Post-it note, invented by a 3M engineer who was disgusted with the slips of paper he used as bookmarks because they kept falling out of his books. He found a special glue that made paper slips easy to stick on and easy to pull off. But once consumers got hold of it, the Post-it became indispensable for tacking notes onto documents or posting notices on doors. "The Post-it took on a life of its own," says Petroski.

Paper clips are another example of an invention finding unintended uses. "As tie clips, for instance," he says. "And I recently ate at a fancy restaurant where the waiter was using paper clips to hold up the cuffs of his trousers–that is an example of a 'lay person's invention.'"

As Petroski sees it, Post-its and paper clips are just supercomputers and suspension bridges writ small. "No matter what you're designing, it always means compromise, which is why nothing is ever perfect. You're always dealing with competing objectives, like make it strong but make it cheap."

Petroski says inventors revel in such problems. They are wild optimists. Instead of "flops," they have "learning experiences." For instance, Thomas Edison discarded hundreds of possible filaments on the way to the light bulb. As Edison explained it: "I failed my way to success." Failure fascinates Henry Petroski. In fact, it is his engineering specialty–the analysis of why concrete dams crack and suspension bridges sag. It was even a failure, the early space race, that induced him to become an engineer.

He almost didn't go to college. Born in 1942, he grew up in New York City, where his father was a trucking company rate clerk. Nobody in the family had gone to college. Petroski had no college plans, either. But then the Soviets orbited Sputnik, and Americans got the technological jitters. Guidance counselors urged good math and science students, like Henry Petroski, to become engineers. He enrolled at Manhattan College, in The Bronx, majoring in engineering. His grades kept rising. "I hadn't really been much of a student before, so I must have had a bent for it," he says.

Still, in graduate school at the University of Illinois, he was drawn to philosophy and literature. He wrote poems to his future wife, then a graduate English student, today a fiction writer. But his first teaching job, at the University of Texas, focused on engineering's mathematical side. And his poetry became "more about science, math and technical stuff." Such poetry had a small audience. And so he switched to essays.

In 1975 he became a failure analyst at the Argonne National Laboratory, writing such papers as "Effects of Cracks in Irradiation-Embrittled Hexagonal Subassembly Ducts." Meanwhile, after his wife and two children had gone to bed, he turned out essays for everything from technical journals to the *New York Times.* By 1980, when he moved to Duke University, he was pondering the nature of engineering itself. This new endeavor was spurred by some dramatic failures of engineering–a collapsed Kansas City hotel skywalk, a DC-10 crash. "I felt you had to either defend engineering or criticize it," he says. The pondering led to his first book, *To Engineer Is Human.* "It was a way of explaining to myself what engineering is, and to me it's about failure–it's about fixing what can go wrong or doesn't work well."

Paper clips are but one innovation put to unintended uses–such as holding up a waiter's trouser cuffs.

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The word "pencil" derives from the Latin *penicillum* (little tail), a fine-pointed brush made of animal hairs, used by Romans for writing and drawing.

But then Petroski really got inspired. What did it were Duke University's pencils. "When I first came here, the pencils were different from what I was used to. They were blue rather than yellow, and they seemed somehow crude, as if the quality control wasn't the best–I got fixated on them and began to look at pencils in a way I never had before." All sorts of questions occurred to him: Who made the first pencil? Why are most pencils yellow? And how do they get the lead inside pencils?

He wrote a technical article about why pencil points snap off at an angle. He fears it brands him a trifler: "It sounds frivolous, but if you can't understand how a pencil point breaks, you can't understand how an airplane wing breaks." Trying to inject some history into his report, he found that little had been written about the pencil. And so he wrote the book himself. Now he is the man to see if you want to know about pencils.

He can tell you that the word "pencil" comes from the Latin *penicillum* (little tail), a fine-pointed brush of animal hairs the Romans used for writing and drawing. As late as 1771 the *Encyclopedia Britannica* noted that the "larger sorts are made of boars bristles" while the "finer sorts of pencils are made of camels, badgers, and squirrels hair, and of the down of swans."

To Petroski, the pencil's long story shows how all sorts of societal forces shape a technology's evolution. The pencil is an engineering quest-for-the-grail saga, the search for an implement that could write both dark and dry. The penicillum's line was dark and wet. The Romans' alternative writing instrument, the stylus–a pointed stick of lead or metal alloy usually used for writing on wax–could make a faint dry line on some surfaces. However, the stylus could double as a weapon. Caesar, in front of the Senate, once grabbed his stylus and stabbed Cassius in the arm, the ultimate in making a point.

In the mid-1500s, so legend has it, the pencil quest finally ended near Keswick, in northwestern England, when a storm blew over an oak tree (or possibly an ash). Among its roots, passing shepherds discovered a black substance, softer than stone, that they had never before seen.

We now know it as graphite, a form of the element carbon. But the Elizabethans knew only that the new material made a line on paper that was wonderfully black and dry. They gave it all sorts of names, including *plumbago* (Latin for "acts like lead"), black lead, black-cowke, kish and wad, or wadd. Wadd mining quickly became a big industry. You could write with a lump of wadd, or you could insert a sliver into the tip of a wooden stylus. By the late 1600s craftsmen were creating virtually modern pencils, encasing strips of graphite in wood.

So how did they–and do they–get that lead in? (Actually, pencil lead is a graphite-clay mixture.) The technology, says Petroski, is that of a sandwich. Cabinetmakers sliced a strip of wood lengthwise and cut a groove down the middle. They glued the lead into the groove. Then they slathered glue on a matching length of wood and pressed it on top of the first. The result was–and is–a pencil.

Petroski can outline the pencil's history, too, noting

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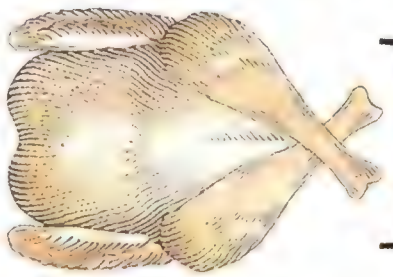

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Early fork's failing–morsels fell between the two tines–prompted development of three-tined implements.

that Britain at first had a monopoly because its mines produced the world's purest graphite. But the best pencil wood turned out be Florida red cedar. And when Britain and France warred in the 1790s, cutting France off from the British plumbago, the French mounted a crash search for substitutes that Petroski compares to the Manhattan Project. A French engineer developed a process for purifying inferior graphite. Then, mixing the purified graphite powder with clay and firing the concoction in an oven, he could produce quality pencil leads. And by varying the amount of clay, he could control the hardness and darkness of the resulting line. Essentially, it is still done that way today.

Yellowness is another pencil feature embedded in history, this time because of a marketing ploy. As the graphite in the English mine dwindled, pencil manufacturers hunted for a new source. In 1856 the German pencil company A. W. Faber gained rights to a high-quality deposit in Siberia, near the Chinese border. Faber boasted about its new graphite from the Far East. Eventually, manufacturers began painting their pencils yellow to suggest the Far East and giving them Oriental-sounding names like "Mongol." Today, three out of four pencils are still yellow, although practically nobody except Henry Petroski remembers why.

He also can tell you that, for want of a pencil, the Scottish poet Robert Burns once used his diamond ring to scratch verses in a windowpane. Petroski can tell you that Henry David Thoreau and his father produced America's top-of-the-line pencils in the 1840s. Thomas Edison liked short pencils and persuaded a pencil factory to turn out stubby pencils just for him. Harold Ross, founding editor of the *New Yorker*, had an appetite for pencils. Every morning his office boy found that Ross' pencils "had been chewed, bitten into, and possibly eaten." And Petroski can tell you that by the early 1900s, an acute shortage of Southern red cedar had developed. Desperate manufacturers sent "cedar cruisers" tramping across the South seeking old cedar stumps, cedar-log houses, cedar-plank barns, cedar-rail fences. Later the pencil makers found a substitute in incense cedar, but they dyed it and perfumed it to simulate the original "pencil wood."

Petroski's avalanche of pencil facts has a purpose. He hopes it will persuade you to give engineers a break. Engineering, he laments, is a profession sometimes upstaged by flashier rivals, such as physics with its quark-hunters and cosmologists scouting out black holes. Partly, Petroski blames engineers themselves: "We're not great communicators." And so he has been communicating like crazy, showing us the brow-furrowing that goes into even technology's little guys, like those paper clips.

Before paper clips, desk jockeys fastened documents together with ribbons. But that required cutting holes in the paper. An alternative, pins, also made holes. And so, by the late 1800s, inventors began toying with versions of the paper clip. A Norwegian, Johan Vaaler, designed one type. During World War II, proud Norwegians fastened paper clips to their lapels to tweak the occupying Germans, signifying they were "binding together." Meanwhile, once invented, paper clips underwent multiple refinements, diversifying to fit various office niches, with myriad square, triangular and other species.

For sissies only: table forks

As another exemplar of technological evolution, Petroski cites table forks, which probably originated in the seventh-century Middle East. Until forks were invented, eating a meal with two knives was considered good table manners. At first, forks had only two tines. That worked well when they were used mainly in the kitchen, to hold meat for carving. True table forks for conveying food from the plate to the mouth reached Italy about 1100 and England in the 1600s, where they were considered sissified. But their real failing was awkwardness because small morsels tended to fall between the two tines. So forks evolved a third tine. By the late 1800s, four tines were standard.

Meanwhile, other tableware also was undergoing an evolutionary explosion. By 1898 one silverware company offered a set with 131 different pieces, including 19 types of spoons. Eventually the tableware population crashed, a failure of excess, since almost nobody could tell the mango fork from the oyster fork. Most of the specialized forks and spoons and knives disappeared into attics in our own century, as table settings regained sanity.

"Tin" cans are also among Petroski's favorite objects.

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Developed in 1810 to supply British soldiers and sailors with homey food, they were first made of tin-coated wrought iron. But so much effort went into devising a seal that nobody thought much about how to open the cans. Frustrated soldiers attacked them with bayonets and rifle bullets. And so the can gave rise to the technological equivalent of a symbiotic species: the can opener. Can evolution culminated in the pop-top aluminum can. The aluminum has grown ever thinner. Now each can is virtually an aluminum balloon, held up mainly by the pressure of its contents.

So what else do we need? Henry Petroski has a few good ideas. A new air-conditioning technology, for one. "It's too hot or too cold, partly because the system's either on or off," says Petroski. "And it can draw smoke from the building's smoking section into the nonsmoking section, which gets people irritated."

Fast-food packaging needs fixing, too, he says: "McDonald's old clamshell packages are gone for ecological reasons, so now they wrap things in paper and stuff them in a bag, and it all gets squashed–the time is ripe for a new packaging that keeps your order warm and unsquashed, but is still easy on the environment."

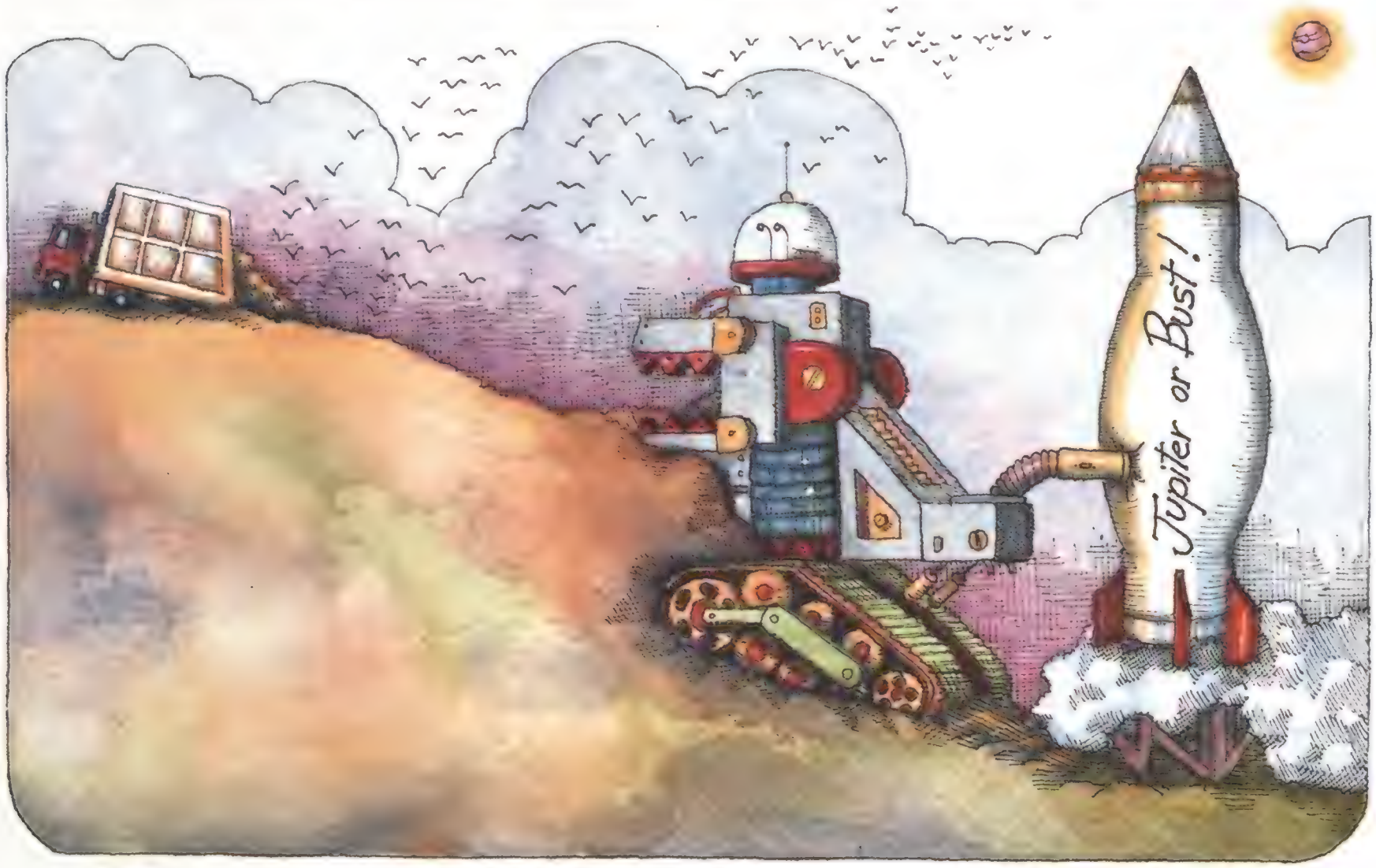
Petroski thinks recycling bins need gussying up. "They're generally ugly, and they overflow with dripping cans of soda. People are sympathetic with recycling, and as a result recycling depots are overflowing to the hilt, not clean, not neat–we need better ways of handling these things." But what about the paper clip? Surely the paper clip is as good as it gets?

Nope. "It doesn't really work well, and we adapt our use of it to its failings," Petroski says. "It comes off too easily, yet it's often hard to get on–sometimes it rips the paper. And it doesn't adjust well to different thicknesses." But the inventive mind is ever at work. Petroski says he has been looking over a spate of new patents, many from Southeast Asia, for improved paper clip designs. And a new generation of inventive minds is coming along, according to evidence from Milton, Vermont, where first-graders pondering environmental problems have been writing letters to their local newspaper. Matthew McGuire wrote: "I think an inventor should invent a chemical that dissolves trash." Ashley Camp called for even bolder solutions: "I think we should make a robot that eats up all the garbage, then we can blast it to Jupiter."

Henry Petroski, too, seems to have the inventor's bent. Recently he was talking about computer-aided design, in which engineers at a keyboard can shape a bridge's girders or just about anything else, even the configuration of a new diaper. Petroski looked suddenly reflective.

"Diapers," he muttered, deep in thought. "Now there's a messy problem for an engineer!"

A new generation of inventive minds is coming along: one first-grader pondering environmental dilemmas offered this solution: "We should make a robot that eats up all the garbage, then we can blast it to Jupiter."



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By Amy Hill Hearth

Bessie and Sadie: the Delany sisters relive a century

Still hale at 100-plus, two survivors of a remarkable family have their say about the good and bad times they had getting here

On a balmy, late spring day in 1992, inside a two-story brick house tucked at the end of a dead-end street in Mount Vernon, New York, two sisters are giggling like schoolgirls. But these two sisters–Sarah and Elizabeth Delany–are both more than 100 years old.

They have owned the house for 35 years, and it seems that the neighbors had just been over to report, rather seriously, that there may be ghosts in it.

"We told them, 'Ain't no ha'nts, it's just the two of us being silly,'" Elizabeth, known as Bessie, says, laughing until she is out of breath. "I guess their houseguests heard us through the wall, and it didn't occur to them that these two old sisters, at our age, would be a-carrying on like that, late in the night."

Just what were they a-carrying on about? Tales from their childhood back in Raleigh, North Carolina, before Jim Crow, jokes from their Harlem days–stories about "folks who've been dead so long they've turned to dust," as Sarah, called Sadie, explains it.

The daughters of a man born into slavery who eventually became the first elected African-American bishop of the Episcopal Church in America, they are themselves accomplished career women in their own right. Bessie, a graduate of Columbia University's school of dentistry, was a dentist; Sadie, with a degree from Columbia Teachers College, was a high school teacher and successful businesswoman. The Delany sisters are the oldest living members of one of America's preeminent black families, two of ten brothers and sisters who were all college-educated professionals at a time when few Americans, black or white, ever went beyond high school. At ages 102 and 104, respectively, Bessie and Sadie are also apparently the oldest living authors in America, having just completed, with my help as coauthor, a history of their life and times.

The book is called *Having Our Say: The Delany Sisters' First 100 Years,* and the title stems from Bessie's tendency, during its creation, of announcing with some glee, "We're having our say!" It was deliciously satisfying, it seems, to find that a culture that had long ignored women in general, and African-American women in particular, was suddenly interested. To discover, after a century of life, that society respects your achievements and viewpoints is a special gift. Says Bessie, with obvious delight, "I never thought I'd see the day that the world would want to hear what two old Negro women have to say."

Neither sister ever married–despite a number of opportunities. They have lived together virtually all of their lives. "You know why we're still here?" Bessie asks mischievously, pausing for effect. "We never had husbands to worry us to death!" But the serious reason they've lived so long, according to them, is that they need each other. "We are completely different in personality," says Sadie, "yet we keep each other going. It makes things interesting."

Fragile but fiercely independent, the Delany sisters still handle their own finances, prepare their meals and look after their home. They live simply, unable–or unwilling–to let go of time-honored pleasures, like making peach preserves. They have never purchased a bar of soap; they still make it the old-fashioned way with chicken fat and lye. "You never saw people who can live cheaper," declares Bessie.

Hand-crocheted doilies and radio talk shows

The ground floor of their house is furnished in oversize mahogany. There is a piano. Hand-crocheted doilies adorn the backs of parlor chairs. There is no telephone because, as Bessie once explained, "We think the telephone is the biggest nuisance invented by mankind."

The circa-1950 television console (bought so Mama, who lived to be 95, could watch Milton Berle) is turned on nowadays only for the *MacNeil/Lehrer Newshour.* Radio is still king in the Delany sisters' home, and they admit to staying up late into the night to listen to call-in talk shows, which they find both bizarre and illuminating. The sisters, in fact, are the most well-informed people I know, which is one reason it is sometimes hard to remember that they are more than 100 years old.

During the 1992 election season, they were the only people I knew who could recite Ross Perot's deficit-reduction strategy. Yet, when I met them they had never before heard of a telephone-answering machine, a garage-door opener or a laptop computer.

Bessie, 102, and Sadie, 104, confront the world from dining room of their home in Mount Vernon, New York. When asked how they made it past 100, Bessie says, "Honey, we never had husbands to worry us to death."

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"She's been that way since the day she was born," Sadie says of Bessie. "She was so alert at birth, Mama said 'That child's going to have a mind of her own.'" "Frankly," says Bessie, "most of the things that made me mad happened to me because I am colored. Sexual harassment–that's what they call it today–yes. But racism was always the bigger problem." Sadie sighs, "I don't know how Bessie's lived this long, the way she worries and fusses about everything." "We're living proof that you don't change one bit from cradle to grave," Bessie adds.

Indeed, not very much seems to have changed, at least as the sisters describe it, from the days when they were growing up on the campus of St. Augustine's School, the Episcopal school in Raleigh where Papa was vice principal and Mama was the matron

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running the day-to-day operations.

There was the one–and only one–time they were whipped as children, an event that remains a source of conflict between the sisters because Bessie stood her ground and refused to cry, while Sadie asked for mercy. "You said you weren't going to cry," Bessie points out, still indignant almost a century after the incident. "You said we shouldn't cry, no matter what."

"Well, when I saw how it went for you, I decided it was smarter to give in," Sadie counters. This was the difference in style between the two sisters: "Queen Bess," as their father called Bessie, "would rather die than back down," while "Sweet Sadie," a gentle "mama's child," would do anything to avoid a confrontation.

The whipping with peach switches was meant as a lesson by their father, who was upset that his little daughters had wandered off unsupervised. "Papa was a sweet man, and it was not in his nature to whip us, but he was trying to make an impression on us," Sadie explains. "He was very upset. Colored girls in those days often were molested, and there wasn't a thing anyone could do about it."

Born free, Grandmother Martha Logan couldn't intermarry due to state law.

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In 1890 the Delany children included Sadie (right) and brother Lemuel. Their father, the Rev. Henry Delany, and mother both taught school.

Despite that grim reality, childhood on the campus of "St. Aug's" was a comparatively pleasant experience for the Delany children. It was a family in which "the first 10 cents of every dollar went to the Lord," according to Bessie. "We had everything you could want except money. We had a good home, wonderful parents, plenty of love, faith in the Lord, educational opportunities–oh, we had a privileged childhood for colored children of that time."

At first the issue of color baffled the young Delany children because they themselves were "every shade from nearly white to brown sugar," the sisters say, a fact never mentioned at home, yet of enormous importance when they got out in the world. "The darker you were, honey, the harder it was," says Bessie, speaking as one of the darker-skinned Delanys.

According to Sadie, their father, Henry Beard Delany, was medium-dark-skinned, "actually a reddish-

This article was adapted from Having Our Say: The Delany Sisters' First 100 Years *by Sarah and A. Elizabeth Delany, with Amy Hill Hearth (Kodansha International).*

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brown on account of his mother being part Indian." His true skin color is known only to those who remember him, since no color photograph was ever taken of him (he died in 1928 at age 70), and the official Episcopal Church portrait done in 1918 was "lightened considerably." "Mama was an issue-free Negro, born free but legally colored," explains Sadie. "Her mama was free, so she was born free. The status of the child depended on the status of the mother. If the mother was a slave, the child was a slave; if the mother was free, the child was free."

Their mother's mother, Martha Logan, was born near Danville, Virginia, in 1842. She was the lifelong love and companion of a Virginia farmer named James Miliam, but the couple could not marry because she was black and he was white. (Interracial marriage was not legalized in Virginia until 1967.)

Their daughter, Nanny Logan, was one-eighth black. A proud woman, she chose not to hide her African ancestry. She enrolled at St. Augustine's School, where she met fellow student Henry Beard Delany from Fernandina Beach, Florida. Born into slavery, he was just 7 years old when the Civil War ended, freeing his family.

"Papa was a house-slave for a family named Mock," Sadie says. "They broke the law, teaching Papa to read and

At 18, before going North, Sadie was enrolled in St. Augustine's School.

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In 1933, on her first vacation ever, Bessie spent a day at Atlantic City.

write. Papa always said those folks were as good as any people you could find anywhere. I know that sounds strange to feel that way about the folks who owned him."

Young Henry Beard Delany was working as a mason when a white Episcopal priest named Owen Thackara encouraged him to enroll at St. Aug's. He did and in 1885 graduated as class salutatorian–surpassed only by Nanny Logan, the valedictorian. The two were married at the campus chapel on October 6, 1886. The family they started lived right on campus. The children were not allowed to leave the house in the morning without an "inspection" by Papa, who made sure that boots were polished, ears were clean, and so on. Their parents always referred to each other as "Mr. Delany" and "Mrs. Delany" in front of others, even the children. "In those days," Sadie adds, "people used to call Negroes by their first names as a way of treating them like children. Our parents were blocking that. Very few people even knew Mama's and Papa's first names."

The sisters endured and overcame all kinds of slights and raw discrimination on the road to success, first in the

South, then in the North. Their talk and vocabulary reflect all phases of their lives, moving easily from lively 1930s Harlem gossip to proper English to timeless down-home chatter. Sadie remembers going back home from Harlem and having Mama "give me a piece of her mind" for forgetting herself so far as to say "Darn!" Both sisters invariably refer to the antebellum South as "slavery days." One of the sisters' favorite expressions for being overdressed is "You look like Mrs. Astor's pet mule."

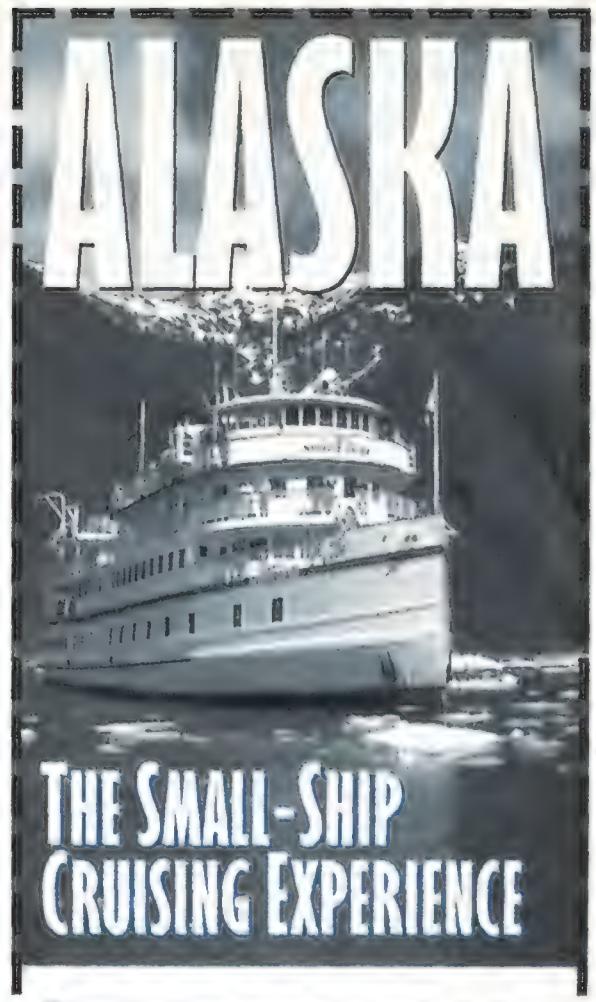
The Delanys still refer to all racist white men as "Rebbys," and very early they understood the danger from "Rebby boys." Even so, the era of Jim Crow, when segregation was enforced by legal sanctions, brought new shocks. Under Jim Crow laws, black Americans faced separate–and inferior–facilities in every part of society, including schools, public transportation and hospitals. Even public restrooms and drinking fountains in the South were labeled "Colored" and "Whites Only." By World War I nearly every state in the South had laws to that effect. In North Carolina, Jim Crow laws dated to the 1890s, when the Delany sisters were children, following the U.S. Supreme Court's Plessy v. Ferguson "separate but equal" decision in 1896.

"Before Jim Crow, people just mixed together, kind of naturally," says Sadie. "Then all of a sudden everything changed." One Sunday afternoon, the family went to Pullen Park in Raleigh for a picnic, as was their custom, but this pleasant excursion was to be different from all the others. "We were told we had to go to the back of the trolley car," Bessie adds, "and we children didn't understand that. Why, Sadie and I liked to sit in the front and let the wind blow in our hair. But Mama and Papa said 'Hush, now,' and moved us to the back. They never explained it to us. Looking back, we think they did not want to make us bitter."

When they arrived at the park, the girls ran to get a drink of water and discovered that a sign had been placed over the communal spring. "In white letters on one side it said, 'Whites,' and on the other side, 'Colored,'" recalls Sadie. "You know what Bessie did? She took the dipper and, when no one was looking, she reached across to the white side and drank from it."

What the sisters usually describe as

The Delanys in 1902: from left (top), Papa, Sadie, Bessie, Harry, Mama (with Hubert), Julia. Seated: Manross, Lemuel (with family dog, Pax), Lucius.



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The Delanys in 1927: from left (top), Harry, Julia, Sadie, Mama, Papa, Bessie, Laura, Lemuel. Seated: Lucius, Hubert, Sam and Manross.

the "Jim Crow mess" was particularly puzzling to them because, in addition to a loving relationship with their white grandfather, James Miliam, the sisters were warmly received by the white Episcopal missionaries who came from New England to teach at St. Augustine's. Their favorite was Miss Grace Moseley, who disregarded the school rules segregating the living quarters of the staff and invited the Delany girls to her rooms each Wednesday evening. "We would pile on her bed, and she would read us Shakespeare and all the classics," Sadie recalls. "That memory makes me smile to this day."

After graduating from St. Augustine's in 1910 and 1911 respectively, Sadie and Bessie got stern lectures from Papa about continuing their education. "He told us we'd never be anything without a college degree and that we owed it to our nation, our race and ourselves to go," Bessie recalls. "But he didn't have any money, and he didn't want us to accept scholarships because he did not want us to be beholden to anyone, so he encouraged us to work as teachers to earn our way through college."

Bessie left home first, putting up a brave front on the train platform when it was time to say farewell, then weeping most of the way to her first job, at a one-room school in Boardman, North Carolina. After two years there, from 1911 to 1913, she decided it was time to "see the world" and accepted a teaching assignment in Brunswick, Georgia, a "real town."

Back home, Sadie lived with the family. She worked as the "Jeanes Super-

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visor" of Wake County, North Carolina. The title derived from a man named Jeanes who started a fund to introduce domestic science to black schools in many parts of the South. "I was just supposed to be in charge of domestic science, but they made me do the county superintendent's work," Sadie says. "So, although they didn't pay me to do that or give me any credit, at 21 I ended up actually in charge of all the colored schools in Wake County." It was as Jeanes Supervisor that Sadie met Booker T. Washington, the founder of the Tuskegee Institute in Alabama. "When he would come to visit Raleigh, he would climb into the passenger seat of my brother Lemuel's car–Lemuel was a medical doctor already and taught me to drive his car–and I would drive Mr. Washington all around the county and show him my schools. He was so appreciative of the work I was doing."

Washington believed that the first aim of African-Americans should be training for jobs, rather than civil rights, a view opposed by Dr. W.E.B. Du Bois. Through their father and brother, the Delany sisters became acquainted with Du Bois, too. In fact, they often compare their own, personal approach to dealing with a racist society as mirroring the conflict between Washington and Du Bois.

"On the one hand," Bessie explains, "you had Booker T. Washington, a smoother of the waters, not a radical. Mr. Washington's goals were modest for his race: he wanted you to be literate, to own your 40 acres and a mule. He wanted no bloodshed. Sadie was more like Booker T. Washington. And on the other hand, you had W.E.B. Du Bois, a militant. I can still see his face: he was a brown-skinned, good-looking man with a mustache, and very intelligent-looking eyes. He was always speaking out against one thing or another, especially about lynchings in the South. I believed in Dr. Du Bois' approach. I would have given life or limb to the cause."

The sisters disapprove of each other's

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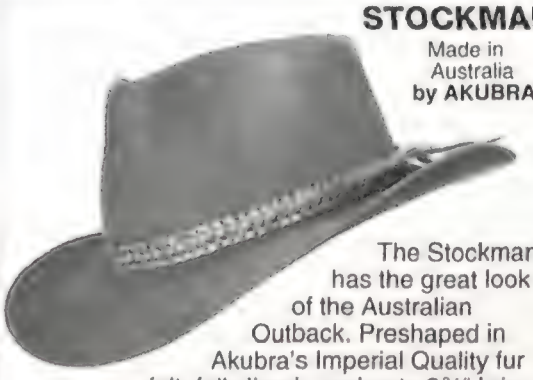

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views on this subject, though they have been able to look beyond their differences. "I think we kind of balance each other out," Sadie says. "I think the world has room for both of us."

That is not to say it has been easy. Sadie has a vivid memory of Bessie's accompanying her to check on one of her little schools, in Knightdale, North Carolina, about 1914.

"It was evening, and we stayed for supper, and while we were washing up I whispered, 'Bessie, don't go talking to these folks like you know everything there is to know in the world. If you do, I'm going to kick you under the table.' Well, sure enough, at supper Bessie started talking about this and that, and I nudged her leg with my foot. The harder I kicked, the more she talked. I finally came to the conclusion, that night, that I was never going to change that Bessie. She was a stubborn little mule and there wasn't a thing I could do about it!"

Yet the sisters found it difficult to be apart. By 1916 Sadie had saved enough to move to New York and enroll at the Pratt Institute, and soon Bessie joined her. In 1918 Sadie went on to Columbia University, where she earned a bachelor's degree in 1920. Meanwhile, Bessie made it into Columbia's School of Dental and Oral Surgery. After graduating in 1923, Bessie became the second black woman licensed to practice dentistry in New York City.

When the sisters first arrived they lived at a Harlem boarding house. Their brothers moved to Harlem, too. "Our brother Lucius was the first to find an apartment, and he let us all move in with him," Sadie recalls. That was at 2505 Seventh Avenue, at the corner of 145th Street. The year was 1919. New York was "exciting and terrifying," Bessie recalls. "A classmate of mine at Columbia said, 'Let's try that old subway.' And I said, 'If you're willing to try it, so will I!' So we went. But once we were on it, I remember whispering to him, 'You sure you know how we can get off this thing?'"

Though anyone can see from their photographs that they were both beautiful young women, by this time the sisters had decided not to marry. "It didn't occur to anyone then that you could be married *and* have a career," says Bessie. "I set my sights on a career. I thought, What does any man really have to offer me? Why would I want to give up my freedom and independence to take care of some man?"

Sadie was teaching at Public School 119, an elementary school in Harlem, and working on her master's degree in education at Columbia, which she completed in 1925. Bessie opened a dental office with her brother Harry, also a dentist, at the corner of Seventh Avenue and 135th Street, in the heart of Harlem. In 1923 she charged $2 for cleaning teeth or pulling a tooth, $5 for making a silver filling. "When I re-

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Bessie, after receiving her Columbia degree in dental surgery in 1923.

tired in 1950," she says, "I was still charging the same. I never raised the rates because I was doing OK."

The sisters soon were surrounded by family. All of the Delany children except Lemuel, the physician, eventually moved to New York and settled in Harlem. The Delanys, admired and known throughout North Carolina, quickly became one of Harlem's notable families. In addition to Sadie and Bessie, there was Julia, an accomplished pianist who had graduated from Juilliard; Harry (called "Hap" after moving to New York), a dentist; Lucius, a lawyer; Manross, a career soldier; Laura, like Sadie, a teacher; and Samuel, a businessman and undertaker. Best known was Hubert. An Assistant U.S. Attorney in the Southern District of New York and later a judge in a New York City court, he became a close friend of the mayor of New York, Fiorello La Guardia. Like all the Delany boys, Hubert worked his way through college as a Pullman porter, which, Bessie recalls, "was one of the few jobs a Negro man could get." He used to joke that he had earned an M.B.C. degree–"Master of Baggage Carrying."

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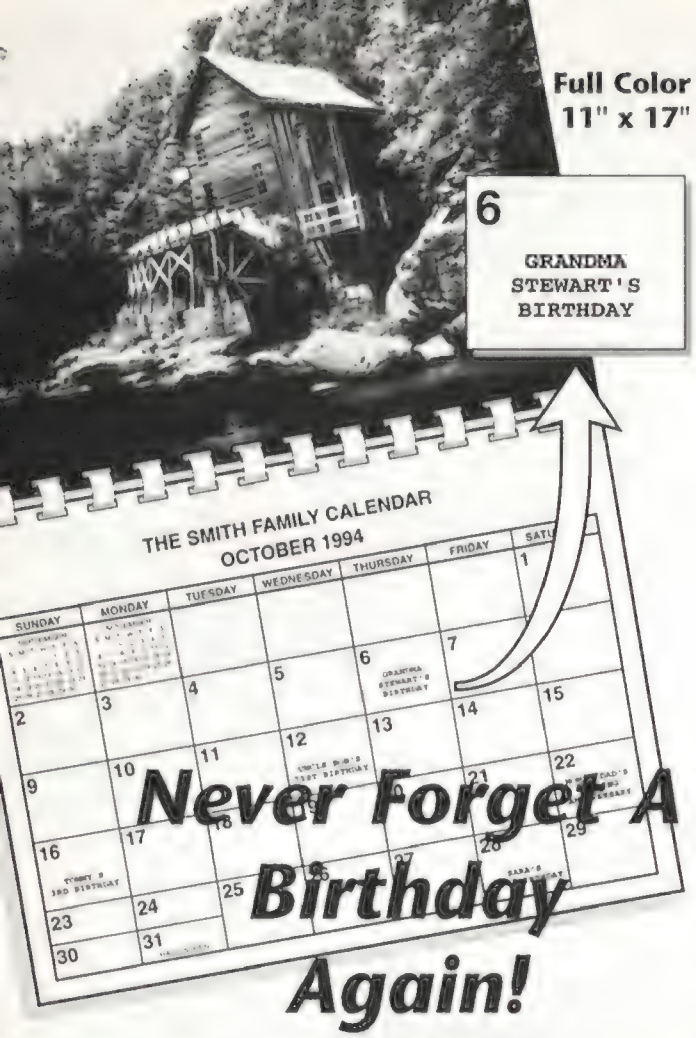

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In 1929, Hubert ran for Congress from the 21st District in Harlem. Bessie and Hap's dental office served as his campaign headquarters. "They hung a huge banner in the window: 'Hubert Delany for Congress,' and they just about drove us crazy with all the excitement," says Bessie. Hubert won the primary but lost the general election.

While Bessie and Hap shared an office, they had separate clienteles. Hap's star-studded practice included the likes of dancer Bill (Bojangles) Robinson and blues singer Alberta Hunter. Bessie had her own prestigious practice, including writer-diplomat James Weldon Johnson and Dr. Louis T. Wright, a New York surgeon and civil rights leader. Another of Bessie's patients was Ed Smalls, owner of Smalls' Paradise, a Harlem nightclub catercorner to Bessie's office, where the Delanys were frequent patrons.

Harlem of the 1920s and early '30s was the spiritual center of black America and the birthplace of what came to be known as the Harlem Renaissance. At the same time, the creative ferment of the Jazz Age made it the undisputed capital of nightlife not just for New York but for all of America. "Over the years, through friends or through our brother Hubert, we met entertainers like Ethel Waters, Bert Williams, Fletcher Henderson, Duke Ellington, Lena Horne and Cab Calloway," Sadie recalls. "But our close friends belonged to the professional class. One of the frequent guests at our home was Mr. William Kelly, editor of the *Amsterdam News*, a very influential Negro newspaper that is still published in New York today." Special friends were Walter White, executive secretary of the NAACP, and E. Franklin Frazier, who pioneered the study of black families and race relations.

As a woman dentist–particularly a black woman dentist–Bessie was on the front lines of the twin battles for equal rights. In the 1920s her friends staged early sit-ins at lunch counters of white restaurants in Harlem that wouldn't

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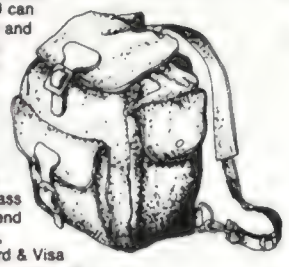

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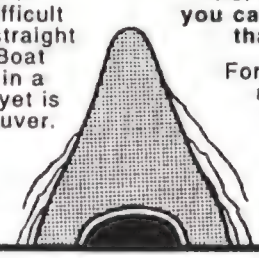

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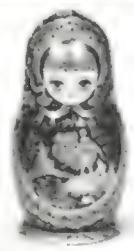

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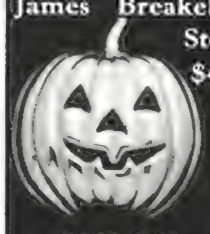

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After she was threatened by a Ku Klux Klan crowd on Long Island, Bessie grew more militant. "Honey, all you had to say was 'protest' and I was there! I marched so much it's a wonder I didn't wear out my feet."

Once she did wear out a pair of stockings. "I had done something we never, ever, did in our family–helped myself to a pair of Sadie's *without asking.*" And wore a hole in them. "Sadie never did like marches and protests. She didn't like confrontations. So I told Sadie, 'Well, you gave *something* for the cause after all. Your stockings!'"

"It was bad enough to be discriminated against by white people because I was colored," Bessie recalls. "But then,

Sadie in mortarboard after graduating from Columbia University in 1920.

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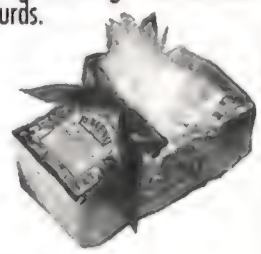

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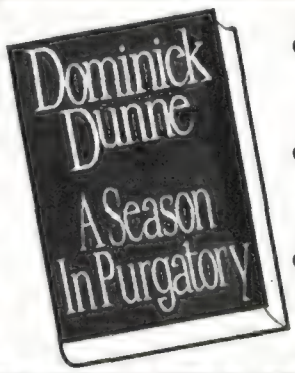

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While visiting relatives down South in the 1960s, Bessie holds the reins during wagon trip to family burial ground with Cousin Daisy and husband Bigelow.

my own people would discriminate against me because I was a woman! Two times I remember that men patients of mine insisted Hap come and pull their teeth. One man said to me, 'Can you pull teeth with those little hands?' and I said, 'Do you really want to find out?' It made me mad."

Once someone had been Bessie's patient, he or she would always come back. "The word got out: 'That colored woman dentist has a gentle touch.' There was a time in the 1920s, '30s and '40s in Harlem when just about every living soul knew of Dr. Bessie," she says. "My patients would go on vacation and send postcards addressed only to 'Dr. Bessie, New York City,' and I would get those cards. I was known in Harlem because I never turned anyone away. I didn't care how sick you were, or how broke; and I didn't care about the color of your skin. If you were white, black, grizzly or gray, that was OK. My goal was to be the best dentist ever."

Sadie, meanwhile, had started her own candy business, Delany's Delights Inc., which she ran out of a loft in the business district of Harlem. Her chocolate fondants could be found in stores all over New York City, including the Abraham & Straus department store over in Brooklyn. During the day, she still taught in elementary school.

"I wanted to teach at the high school level," Sadie remembers. "It was considered a promotion, and it paid better. But I had to be a little clever–Bessie would say 'sneaky'–to find ways to get around these brick walls they set up for colored folks. This is what I did:

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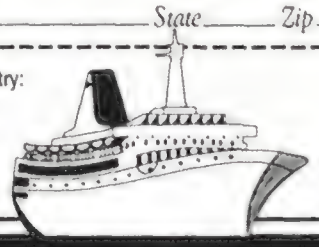

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Sadie says she learned how to cope with institutionalized racism from her father. "When Papa became bishop in 1918, people were mighty impressed. His accomplishment was so extraordinary, I still wonder how he did it. The way to succeed was clear: you had to be better at what you did than any of your white competition. That was the main thing. But you couldn't be too smug about it or white folks would feel threatened."

After Papa died in 1928, the sisters' mother decided to move to New York. She lived with Sadie and Bessie for the rest of her life. The sisters made many sacrifices to make their mother happy. After World War II they moved to The Bronx "so that Mama could have a garden and a little cottage with a porch, just like back home," says Bessie. "Sadie and I were in charge of Mama's happiness, but all of the children took pride in fussing over her."

Bessie retired from her dental practice early, in 1950, to look after Mama but has no regrets. "I got to know Mama in ways that I never had before," she says. "When Mama was close to the end, she suddenly had this great need to tell me about her people. Up until this time, Mama was a little embarrassed that her parents were never mar-

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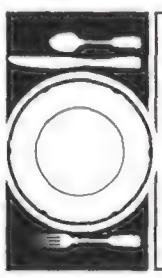

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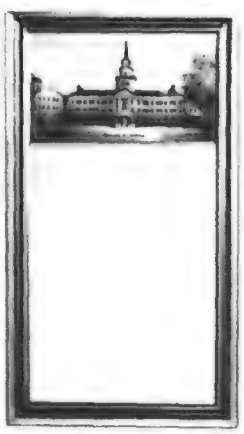

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ried. But when you get real old, honey, you realize there are certain things that just don't matter anymore."

Mama died on June 2, 1956, at age 95. "Poor Sadie, the mama's child, just cried for weeks and weeks," says Bessie. The sisters moved to their present house in Mount Vernon in 1957 to help Sadie get over Mama's death.

But the sisters had learned a great deal from Mama about aging with grace. "We say prayers in the morning and before we go to bed," Sadie says. "It takes a long time to pray for everyone because it's a very big family, and we pray for each one, living and dead. The ones that Bessie doesn't approve of get extra prayers." They laugh, though, when they tell how Sadie begins each morning with a "Thank you, Lord, for another day," while Bessie is apt to say "Oh Lord! Another day?"

The sisters cast a wary eye on modern medicine. "Stay 'way from hospitals, they can kill you," says Bessie. Besides, most doctors "overtreat us old folks," and when they find out how really old the sisters are "they treat us like Exhibit A and Exhibit B." Bessie and Sadie prefer a preventive approach. They do yoga exercises each weekday morning for one hour. Afterward, they each take a clove of garlic, chop it up and swallow it whole (so that there is no odor). They also take a teaspoon of cod liver oil. And they never drink tap water without boiling it first. "Folks keep telling us it's not necessary, that the city of Mount Vernon purifies the water," says Sadie. "But it's a habit we started a long time ago, and at our age, child, we are not about to change our routine."

The sisters once saved the life of a poor Southern cousin who was dying of pellagra by sending vitamins and arranging a change of diet. And true to her training as a domestic science teacher, Sadie keeps up with the latest news on nutrition. The sisters follow a strict low-fat diet, take vitamin supplements and eat as many as seven vegetables a day. "These days, we only cook the old way when home-folks visit us,"

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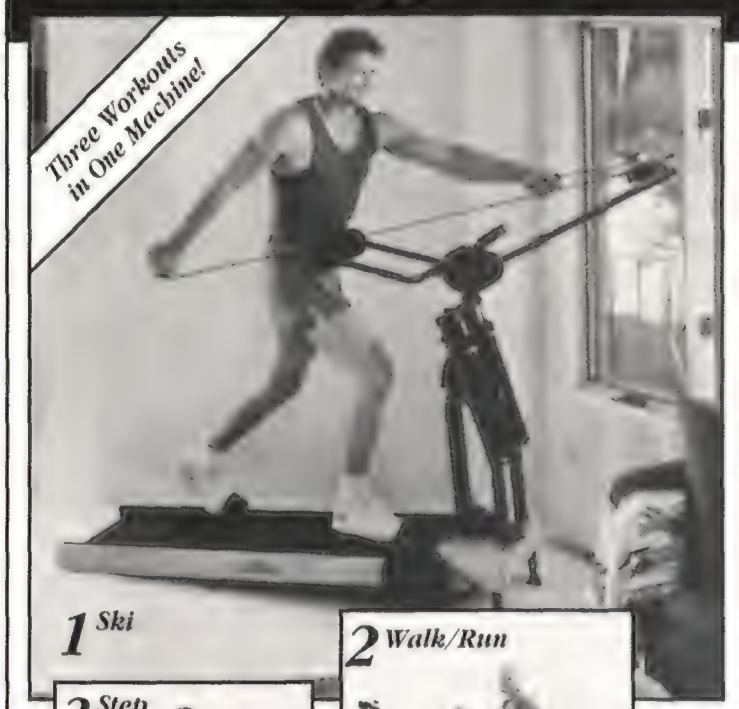

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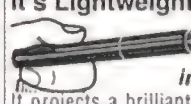

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says Bessie. "All that heavy, fried stuff. They call it soul food today. Well, it may be good for the soul, honey, but it ain't good for the heart!"

Sadie spends a great deal of time worrying about Bessie's heart and, in particular, her blood pressure. "Queen Bess" gets riled up over many topics, especially Washington politics. Her opinion of Bill Clinton is a secret (it would be rude to criticize a "sitting" President). Jimmy Carter scores high for being a "nice Christian boy"; Lyndon Johnson, for his War on Poverty; and Harry Truman, for his "the Buck Stops Here" policy. Ronald Reagan and George Bush elicit only "harrumphs" and a scowl from Bessie, which makes Sadie laugh. "When Negroes are average," says Bessie, "they fail–unless they're very lucky. But if you're average and *white*, honey, you can go far. Just look at Dan Quayle. If that boy was colored he'd be washing dishes somewhere back in Ohio or Indiana or wherever he's from."

In politics Sadie's opinions are almost identical to Bessie's, but softened. Still, the sisters haven't missed a chance to vote since women's suffrage was passed in 1920. "We've come a long way since slavery days," Bessie says. "And there ain't no use in quitting now. It's true you can't change the world with your one vote, but if you don't vote you don't have the right to complain. And honey, I surely do not want to give up my right to complain."

"Bessie does not mince words, and when she has a strong opinion she's not shy!" says Sadie. "One of our nieces died recently, and somebody was over here describing this place where she died. They called it a hospice, and it sounded awfully nice. I said, 'Well, maybe when my time comes, y'all should take me to a hospice.' But Bessie got real mad. She said, 'You ain't dying in no hospice. You ain't dying nowhere but upstairs in yo' bed!'

"Well, it makes no difference to me. But I'll do what it takes to make her happy. That's my job. She may be 102 years old, but she's still my little sister."

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At home the sisters continue a loving, lifelong chat about divergent views. Sadie (at right): "Life is short, and it's up to you to make it sweet." Bessie: "When I meet Saint Peter, he'll say, 'Lord, child, you were *mean*!'"

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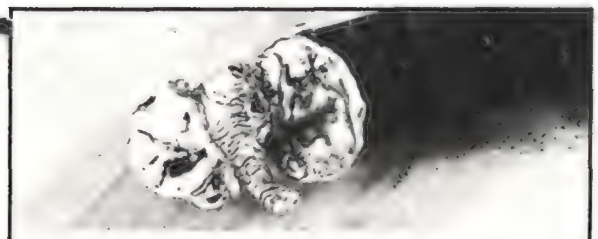
The Oldest Dead White European Males and Other Reflections on the Classics
Bernard Knox
W. W. Norton, $15.95

The Marriage of Cadmus and Harmony
Roberto Calasso
Alfred A. Knopf, $25

The argument against the traditional academic curriculum in the humanities–against what has come to be called a canon of dead white European males–is largely an argument against sameness from the standpoint of self-proclaimed difference. Those who assert difference as their identity, "advocates of multiculturalism and militant feminists" as Bernard Knox puts it, condemn the familiar canon of literary classics, to quote Knox again, "as sexist and racist [and] even as the instrument . . . used by a ruling class to impose conformity." Spokesmen for both (or all) sides of this debate tend to speak with revolutionary and reactionary fervor, as if the essential purpose of literature were to legislate behavior. You needn't be caught up in the debate to be interested in it, to wonder if it's the sort of occasional paroxysm that might prove healthy for the liberal arts in the long run or the kind that will prove a threat to their very foundation. (To be the former, it may have to be the latter as well.) As usual, the question is not only whether the liberal arts will survive their enemies, but whether they'll survive their friends. For utterly different reasons, Bernard Knox and Roberto Calasso are the friends the traditional curriculum–the curriculum that begins with the ancient Greeks–needs right now.

The Oldest Dead White European Males is a collection of three lectures delivered by



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Knox during the past decade, the decade in which the struggle over the humanities has taken shape. Perhaps the greatest fallacy of the revisionists–the men and women Knox is obliquely addressing in these lectures–is to believe that the primary use a man like Knox has for the classics is to justify his own position, his own power, whatever that may be. As these lectures so ably demonstrate, nothing could be further from the truth. Throughout the whole debate there has been a tendency to confuse literature with the manner and the setting in which it is taught. Knox's purpose here is to give the reader, who has perhaps lost a familiarity with Greek literature, a glimpse of its power to unsettle, to overwhelm, to interrogate the things in life and art and politics that we take for granted.

That these are elegant essays goes without saying. That their elegance is open-ended and moderating does need saying. Knox, director emeritus of Harvard's Center for Hellenic Studies, doesn't argue from tradition; he doesn't suggest that the study of the Greek classics is good because it has been thought to be good for many centuries. He suggests instead that throughout the history of the West the Greek language–and its literature–has been an agent of "change and disturbance," a radicalizing, multicultural force that's frequently been used to oppose the very orthodoxies the revisionists themselves oppose.

In an essay entitled "The Walls of Thebes," Knox argues too that the test of the humanities, which seem to many people an impractical set of disciplines, is not their immediate utility but something larger and far more germane in a country whose political structure derives directly from the Athenian experiment with democracy in the fifth century B.C. "That group of studies we call the humanities," he writes, "came into being as an education for democracy, a training in free citizenship; all through its long history it has been the advocate of free thought and speech; it has flourished most brilliantly wherever those freedoms were respected and faced repression and banishment wherever they were not."

Knox sponsors the Greeks with eloquence and scholarship, but Roberto Calasso, author and head of the Italian publishing firm Adelphi Edizioni, brings us face-to-face with them, or rather with the myths by which they are so often identified. *The Marriage of Cadmus and Harmony* is a book whose brilliance seems to

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make self-evident the arguments about the unsettling power of the Greeks found in Knox's lectures. I can't give you any generic equivalents for this work. It is partly a retelling of the central Greek myths, partly a meditation on their fluidity, their extraordinary capacity to change shape, as well as the art and literature by which they are represented, and partly a reflection on the mythic, and by implication, the nonmythic modern mind.

Greek myth is almost always taught as if it were a coherent body of stories that segued naturally from one into another, a self-explicating anthology of tales that somehow explained how things came to be, a kind of alternative evolution. Calasso insists on different properties. "No sooner have you grabbed hold of it," he writes, "than myth opens out into a fan of a thousand segments." What the modern mind has come to see as symbol, as meaning, the mythic mind saw completely differently. Calasso argues that meaning was "the first enemy of the aesthetic," and that even "aesthetic," as we now understand the word, is too narrow a term for the way the Greek gods imposed themselves on human perception. And so Calasso looks for a different way to explain the effect of the gods. They are "everything that takes us away from the ordinary sensations of life. 'With a god, you are always crying and laughing,' we read in Sophocles' *Ajax*."

You will not find an argument for the humanities in *The Marriage of Cadmus and Harmony*, nor will you find a portrayal of Greek myth likely to placate the largely puritanical American mind or anyone whose business is righting the politics of culture. What you will find is a sense of the otherness of the Greek gods, whose pleasures were rape and sacrifice, and a revivifying conception of the power of myth. "We enter the mythical," writes Calasso, echoing Socrates, "when we enter the realm of risk, and myth is the enchantment we generate in ourselves at such moments. More than a belief, it is a magical bond that tightens around us. It is a spell the soul casts on itself." A book such as this, difficult, evocative, threatening, reminds us that literature was never meant to have its strongest influence within the university, where it is all meaning and little force, and where the soul is rarely encouraged to cast a spell on itself. It reminds us as well of what can't be contained in a curriculum, no matter how unconstricted or multicultural. "For centuries," Calasso says, "people

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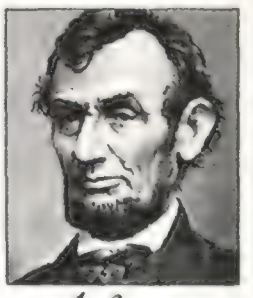

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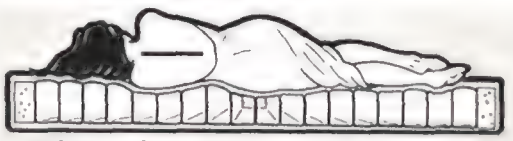

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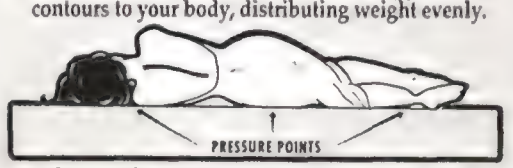

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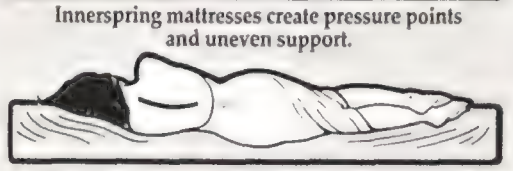

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have spoken of the Greek myths as of something to be rediscovered, reawoken. The truth is it is the myths that are still out there waiting to wake us and be seen by us, like a tree waiting to greet our newly opened eyes."

Verlyn Klinkenborg lives and writes in Housatonic, Massachusetts.

Chautauqua Summer: Adventures of a Late-20th-Century Vaudevillian
Rebecca Chace
Harcourt Brace, $21.95

Ask almost anyone who claims to know, and you'll probably be told that vaudeville died when the movies were born. Rebecca Chace knows differently.

As a high-spirited and rebellious New York City youth, Chace got herself thrown out of a series of boarding schools for both academic and disciplinary transgressions, and then refused college, opting instead to travel. In Seattle she fell in with a small but flourishing counterculture of vaudevillians and street performers, and developed a voracious appetite for learning any performance skill she could find someone to teach, including trapeze, tumbling, juggling, tap dancing and slack-rope walking. By age 20, she had become Francesca Devianté and toured Europe with a troupe called the Royale Famille Du-Caniveaux–"Royal Family of the Gutter." This book is her tribute to the little-known world of modern vaudeville.

As a trapeze artist, Chace eventually joined "The Chautauqua," a traveling revue that takes its name from a turn-of-the-century tradition begun at Chautauqua, New York, where summer tent shows encamped for a week, offering workshops and performances that combined entertainment and education in the name of "self-betterment."

Chace chronicles her Chautauqua during its 1989 tour. Every summer since the mid-'70s, this modern-day Chautauqua has taken its portable stage throughout the rural Pacific Northwest. Occasionally the troupe plays an old vaudeville house where the real thing hasn't been seen since the movies were invented. (In one Idaho town, local kids call the Chautauqua "the movies" because they've never known any other form of public entertainment.) Audiences usually include older people who remember being taken to Chautauqua as children (as does one of the performers, septuagenarian folksinger Faith Petric).

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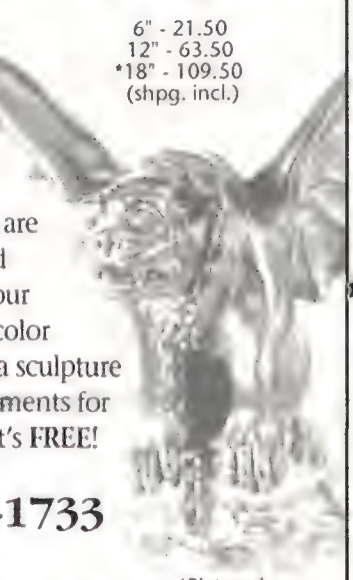
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John Phillip Sousa marches, Fellini film scores and wild jazz, the Chautauqua cast includes a motley and endearing range of performers. There are singers crooning in styles from cowboy to gospel; Artis the Spoonman, who turns his whole body into a rhythm machine, slapping it with wooden spoons, silver spoons, tuning forks, salad servers and anything else that sounds good against flesh; Toes Tiranoff, a tap dancer who studied with the old Harlem hoofers; Magical Mystical Michael, a sleight-of-hand artist; and a grand finale of intrepid juggling by the Flying Karamazov Brothers.

The Karamazovs are the guiding force behind the Chautauqua. The group was founded about 20 years ago by co-valedictorians of the University of California at Santa Cruz who juggled torches on the podium while delivering a joint commencement address. Taking to the streets, they adopted the names "Dmitri" and "Ivan" Karamazov, and recruited "Fyodor," "Smerdyakov" and "Alyosha."

Legendary figures in the low-profile, lower-paying world of vaudeville, the Karamazovs started their career passing the hat and are still street performers at heart, but they have managed to cross over to the mainstream, appearing on the Broadway stage and in major motion pictures. On the Chautauqua tour, their showstopper final number consists of juggling nine "objects of terror," including a cleaver, a raw egg, a bottle of champagne and a chunk of dry ice. As the awed audience comes to its feet, the egg sizzles in a saucepan held over a flaming torch, and champagne is poured.

Chace's writing is as peripatetic as her travels, sliding effortlessly through history both personal and public, stopping often to share charming, funny, irreverent anecdotes that offer a window on her vaudeville world and its zany cast of characters. Her descriptions give them dimension and appeal, although she is unflinchingly honest when reporting hypocrisies and superficialities. Her own romance with Dmitri Karamazov is hardly remarkable in comparison with the extraordinary events and personalities all around. Chace is at her best when she penetrates a performer's psyche, particularly her own, coaxing us through her trapeze act's attendant joys and fears.

It is the palpable danger of acts like trapeze, she believes, that excites and draws audiences. Though she is accomplished at her art, fear is her constant companion. Performing each night in a

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new setting, often under difficult conditions, she is terrified of not being able to see the trapeze bar in the dark or being blinded by the spotlight; she worries about the homemade trapeze rig giving way or the bar swinging erratically in a breeze. She repeats her mentor's warning like a mantra: "never become overconfident or you will fall." But she can't entirely banish it from her mind, nor her awareness of how slim the chance of actually being caught by a spotter. There is only one conclusion: "I simply couldn't fall."

But at the cost of anxiety she finds something valuable. "The trapeze bar provided a physical clarity that had been absent from the rest of my creative life. . . . There is no time for self-doubt, there is only the rhythm of the breathing, the swing of the body up onto the bar, and the taut, heartbreaking moment of balance."

In the book's brief epilogue, hearts are both joined and broken. We learn that she and Dmitri married in 1990, but during that same year she fell from the bar, shattering her elbow and wrist. "Because of the permanent damage to my arm, I have not been able to perform on the trapeze since the accident," the book concludes. "At least not yet. . . ."

Readers will root for her. I am inexplicably confident that this daring young woman will return to the trapeze.
David M. Schwartz is the author of *How Many Is a Million?*

The Roads Taken: Travels Through America's Literary Landscapes
Fred Setterberg
University of Georgia Press, $24.95

Fred Setterberg believes in the magic of books. In the first chapter of this record of his search for some of his favorite authors by way of the geography that nurtured them, he writes: "Librarians, schoolteachers, civil libertarians and other good and necessary people often claim that nobody is ever seduced by a book–but of course they're dead wrong."

Any book worth reading threatens to do just that, to take us away from the everyday world, he insists.

Inspired by a footloose young cousin who has indeed been seduced by the fiction of Jack Kerouac, Setterberg rereads *On the Road* after 20 years and decides it's time for him to rediscover America. Using their books as travel guides, he ventures to Larry McMurtry's Texas and Willa Cather's Nebraska, to country associated with Hemingway, Thoreau and

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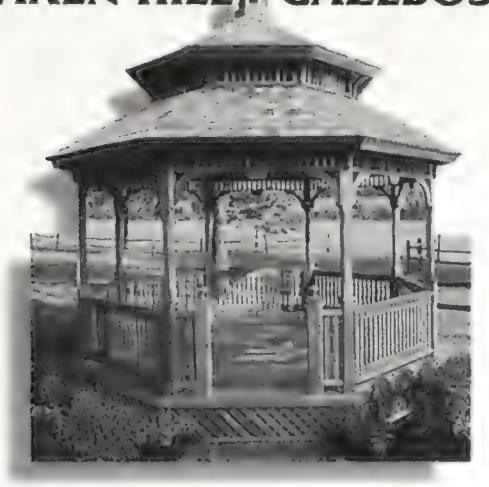

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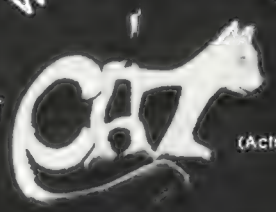
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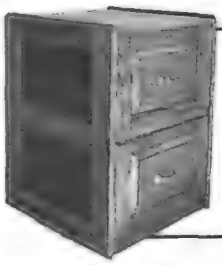

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Twain. In New Orleans a sleepless night in a cheap hotel next door to a rehearsing rock band triggers a meditation on folklorist Zora Neale Hurston; finally he returns home, to Oakland, California.

Setterberg's account of his travels is equal parts celebrations of places and tributes to books. Driving across West Texas, having gotten lost several times, he begins to think about Joshua Deets in McMurtry's *Lonesome Dove,* who "could negotiate the true course at all times in any weather, even in a 'country that seemed to contain nothing except itself.' I admired Deets. I envied him."

A good writer, Setterberg knows, can tell us more about a place and its people than we can discover on our own. In each of the trips he recounts in this book, his literary guides have spoken to his immediate situation while revealing secrets of place and history.

Nebraska comes as a surprise. "By the time we'd reached the middle of the state, the dead sea of flat sprawling land had lapped up upon itself in foamy waves of bristling alfalfa and sugar beets to form one of the most gorgeous landscapes I'd ever seen." Now he understood what Cather meant when she wrote that the "grass was the country as the water is the sea." He understood, too, how the extremes of Nebraska's weather shaped the people, and how Cather came to love that countryside she described as "distinctly *déclassé* as a literary background."

Finally, with Jack London's help, Setterberg and his father explore the home territory. This chapter, "My father's Jack London," is the most moving in the book. On a ferry between Oakland and San Francisco, father and son share thoughts about work and place and filial relationships. And Jack London. Jack London is the bond that links the father, a laborer all his life, and the college-educated son, wanting to belong to his father's world and wanting even more to escape it.

Oakland, "where Jack London really started out," as the older man reminds his son, is also his son's home. "Oakland is the best city," the son tells the father. "I can't see why you even live there," the father responds. The son writes, "It was childish comfort that I drew by arguing that I fit better than my father in Jack London's city." And so they argue and each sees London as his own hero. Author and authors have come full circle.

Dallas Crowe lives and writes in eastern Washington State.

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Additional reading

Around the Mall (p. 18)

The Bishop's Boys: A Life of Wilbur and Orville Wright by Tom Crouch, Norton, 1990

Spaceflight by Tom Crouch, Smithsonian Books (forthcoming)

Eagle Aloft: Two Centuries of the Balloon in America by Tom Crouch, Smithsonian Institution Press, 1983

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Object at hand (p. 26)

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Redwoods (p. 42)

Ancient Forests of the Pacific Northwest by Elliott A. Norse, Wilderness Society/Island Press, 1990

"For Takeover Baron, Redwood Forests are Just One More Deal" by Charles McCoy, *Wall Street Journal*, August 8, 1993

"A Raider's Ruckus in the Redwoods" by Ellen Schultz, *Fortune*, April 24, 1989

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The Age of Rubens (exhibition catalog) by Peter C. Sutton, Harry N. Abrams, 1993

Peter Paul Rubens: Man and Artist by Christopher White, Yale University Press, 1987

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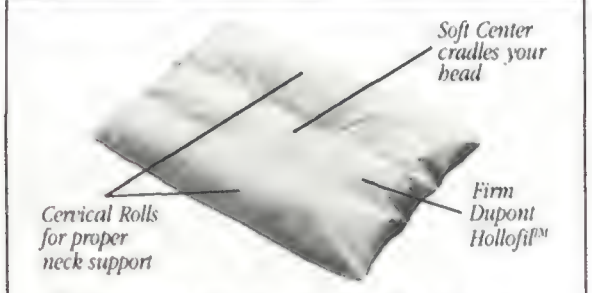

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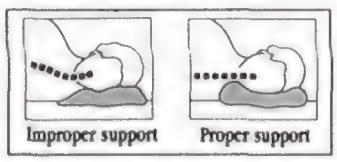

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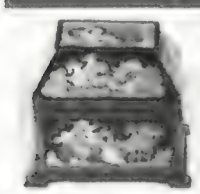
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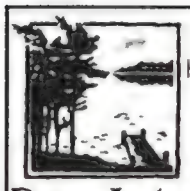

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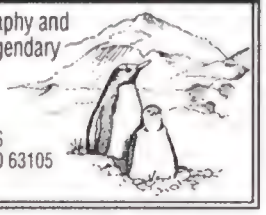

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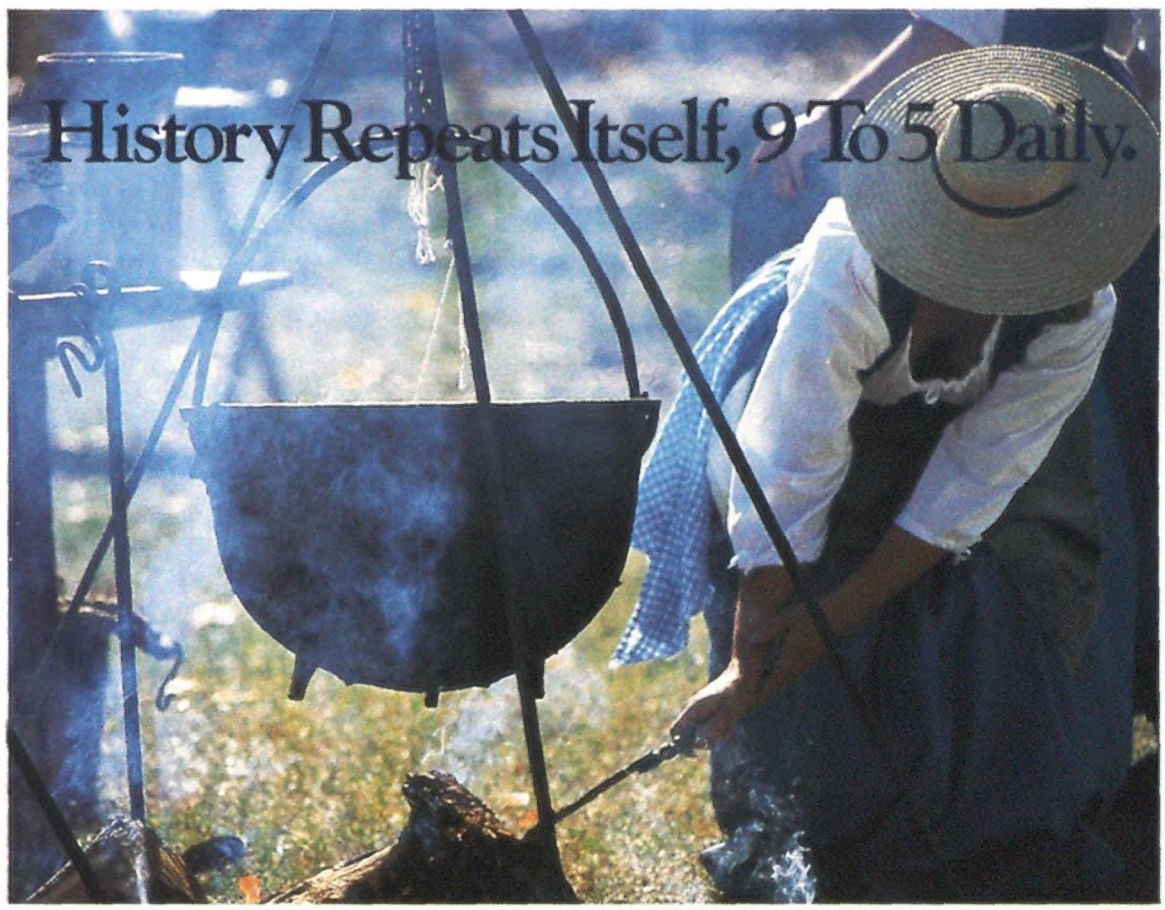

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V I R G I N I A

By Minna Morse

You can't find it? Forget it. Your loss is the Place's gain

In all our travels, Seth and I have yet to find the perfect hideaway, but not long ago we began to suspect that many of our belongings have discovered one of their own. A typical morning finds each of us frantically searching for articles of clothing, jewelry or other accessories. "Honey, where'd you put my gray argyles?" Seth bellows from the bedroom. "I didn't touch them!" I yell back. "Have you seen my watch?"

When it comes to losing things, we're pretty much like other couples. Unlike other couples, however, we don't eventually call to each other, "Never mind–I found it." Our lost things don't get found. My watch will not show up again. His left sock has vanished for good. Likewise an address book, a pair of summer sandals, a Tupperware lid, a dumbbell.

We have just enough room to accommodate everything we own. We do not have a pet that might be dragging our clothes and trinkets off to the doghouse or the litter box. There is no space under our bed for wayward items to collect.

We used to believe there was a logical explanation for these mysterious disappearances. But the day finally came when we had to face up to the truth: logic just doesn't apply. Now, whenever another hankie, hat or necktie joins the ranks of the *desaparecidos*, Seth and I assume that it has gone to "the Place."

The Place is a haven for lost stuff. We used to joke about it, but then we noticed that whenever we did, our possessions began to vanish at an increasing rate. Now we know the Place is real. We're convinced that it will continue to quietly suck property from our world into some other realm, where all the things that were ever lost repose, and to where all the things still to be lost will go.

Last week, on our way to a wedding, we took a wrong turn. By the time we realized what had happened, we'd driven completely off the map the bride had given us. We were lost.

It was an understandable mistake: it was very foggy. When the fog lifted, we found ourselves near two white stone cottages. Each had a sign with one of our names on it. We went into the cottage that said "Minna."

As soon as we stepped across the threshold, the door slammed shut behind us and locked. After a few futile lunges, we gave up and decided to look around. Passing through a strangely familiar nursery filled with pacifiers, we came to a tiny schoolroom. Pencils and pens were scattered everywhere. Covering a desktop were pages ripped from spiral notebooks and scrawled with writing that resembled my own: "Read p. 50-74, test Monday," "Science project due next Friday . . . ACK!"

Another room was packed with small pieces of paper. Seth plucked one from the pile. On it was the name and phone number of a woman I'd recently met at a conference. I reached in and grabbed another. The number of a man I'd gone out with–a long time ago. I quickly crumpled it up and tossed it back in.

"Let's go upstairs," I said. I realized that we'd found the Place–or *my* Place, at any rate. We spent what seemed like hours looking around–in a towering bureau packed with clothes; in a jewelry box overflowing with single earrings; in a kitchen full of appliance parts.

We were coming out of the kitchen when I saw a blonde woman wandering about. She was my old roommate from college. I hadn't heard from her in years. "Oh Lord," I said. It was my long-lost friend Diana. "Minna!" she exclaimed as she ran to greet us. "I am so sorry I haven't called, but you wouldn't believe what I've been through. . ." She looked around at the piles of junk. "Well, I guess you would, wouldn't you?"

Together, Seth, Diana and I explored, hoping to find an escape. "Did you ever lose a computer?" Seth asked me. "No," I answered, and went to the terminal where he was standing and called up the directory. I vaguely recognized the filenames, and then I understood–they were all the files I'd ever zapped.

Down in the basement we found a large freezer, with a sign that said "Lost Weight." "This could be gross," I warned the others as we peeked inside.

"That couldn't be more than 10 or 15 pounds," Seth said, sizing up what was there. "You said you'd lost tons over the years." Thinking back on a lifetime of yo-yo dieting, I wondered where all that weight had gone. Then the answer occurred to me.

"I've never weighed more than 10 or 15 pounds more than I weigh now," I said. "That's what's there."

"Where's the rest?" Diana asked.

I rested my hands on my hips. "It's back where it started. Do you know what that means?"

My companions looked confused.

"It means things don't always stay in the Place," I proclaimed. "It means there's a way out of here!"

Suddenly I felt like Nancy Drew. After probing the walls for secret doors, I spotted a black hole in the floor: "Maybe this is it."

It was. When we emerged, Diana was gone. I assume she went back to New York where she belongs. Seth and I got in the car and tried to find our way to the wedding.

"Are we almost there?" I asked him after a while.

"No," he said. He pulled over to the side of the road and fumbled with the papers on the seat between us. Then, with a sigh, he made a U-turn.

"Where are you going?" I asked.

"Back to the Place," he said. "I think it's got our directions."

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